

The several functions that comprise teaching can be differentiated and shared in various ways with students to enhance learning.

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Teachers and Learning Groups: Dissolution of the Atlas Complex

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The Atlas Complex

Professor A is just concluding the culminating lecture on one of his favorite topics in his field. In earlier lectures, he painstakingly laid the groundwork, explaining each element and placing each detail of the theory in its proper relationship to the others. Today, he carefully ties the various components together to exhibit one of the most beautiful and powerful theories that he knows of. Each time that he lectures on this theory, he more clearly understands its depth and subtlety, and his lectures improve accordingly. Students find the theory difficult, and so he has learned to inject humor, personal views, and dramatic emphasis to get it across. Today, Professor A's pacing and timing work perfectly. He ends just in time to allow for his usual five minutes of questions. He asks, "Are there any questions?" A few students look up from their

notebooks, but nothing else happens. He fills the silence by raising some questions that naturally arise from the theory. Then, he answers the questions. The students dutifully record the answers. One student asks a polite question about a specific fact in the lecture, and Professor A uses the occasion to expound still more on the theory. Another student asks the inevitable question about how much of the material will be on the exam. When the bell rings, Professor A is stirred by mixed emotions. He is pleased with how well he pulled the lecture together—it is easily the best version that he has given—but he is bothered by how little the students seem to have been moved by it. He has enough experience to know what the absence of real questions means. The students probably admire both his performance and the theory. But they do not feel the power of the theory, and they do not grasp how economically it answers so many deep questions. What must he do to get the excitement of his subject across to students?

Professor B is conducting a seminar in her own field of research. The topic for discussion is one of the seminal works in the field. Some students ask her to clarify certain passages, and she is able to do so clearly and completely. Then she asks a question that she believes to be central to the issues that underlie the work, and one of the brighter students responds in a very thorough and lengthy manner. But, inevitably, the student does not understand the full depth of the issue, and Professor B has a strong impulse to correct and clarify the student's answer. However, as an experienced seminar leader, she stifles this impulse and asks the students if they have any response to the first student's answer. Another student says that he disagrees with the first student and proceeds to give his own long and complete answer. Now, Professor B has two shallow and slightly incorrect answers to clear up. After doing so, she asks another question. She fixes her eye on one of the quieter students, and the student responds very tentatively, so that Professor B must encourage him and help to fill in the details missing from his answer. These separate, truncated dialogues between Professor B and each of her students continue until, out of something approaching desperation, she presses one student on what he means by one of his too neat, almost glib answers. As the student retreats into silence, a feeling of defeat overcomes Professor B. The work that they are discussing always stimulates her thinking with the freshness of its perspectives and insights. At each reading, it raises new questions in her mind. How can it fail to motivate a discussion as involving as those she has with fellow students in graduate school? The cause of the dry,

ritualistic seminar before her must be herself, she reasons. She has not asked the right questions.

Both these teachers are the central figures in their classrooms. Like most of their colleagues, they assume full responsibility for all that goes on. They supply motivation, insight, clear explanations, even intellectual curiosity. In exchange, their students supply almost nothing but a faint imitation of the academic performance that they witness. Both teachers so thoroughly dominate the proceedings that they are cut off from what the students know or are confused about. For their part, the students form a group of isolated individuals who have no more in common than their one-to-one relationship with the same individual. While Professors A and B exercise their authority through control of the subject matter and the social encounter in the classroom, they lack the power to make things happen for their students. They are both caught in the middle of their classes by a host of mysterious forces—hidden assumptions, hidden expectations, and the results of their own isolating experience. We call this state the Atlas complex.

In this chapter, we first examine the phenomenon of the Atlas complex. In the next section, we describe a third teacher, Professor C, who is very present in his class but who is not caught in the middle. This example allows us to broaden our perspective on the social organization of the typical college course and on the particular hold that it has on the teacher. Finally, we show the many ways in which this social system can be modified to free teachers from the middle without violating their sense of themselves as teachers. Such modifications should broaden and enrich their view of what they can accomplish as teachers. The result should be a more fulfilling teaching experience and a greater sense of what is possible—in short, a dissolution of the Atlas complex.

The Two-Person Model

Most teachers and students conceive of the heart of education as a two-person relationship. The ideal relationship is that of tutor and tutee alone in a room. Classes are seen only as an economic or pragmatic necessity in which one person—the teacher—either simultaneously engaged in ten or three hundred two-person relationships with separate individuals or addresses a single undifferentiated entity—the audience. Teachers who view their classes as an elaboration of the two-person model are cut off from the potential energy and inspiration that lie in student-to-student interaction or in the mutual support that a

group of individuals working toward a common goal can provide. Consequently, it becomes the responsibility of teachers to provide motivation, enlightenment, and a sense of purpose. Like Atlas, such teachers support the entire enterprise.

The sense of fixedness that stems from the two-person model of teaching has both a cognitive and a social component. The cognitive component stems from the teacher's expertise in subject matter, while the social component results from the teacher's occupying the role of group leader in the classroom. Teachers invest a large quantity of their time, energy, and hard work in becoming experts in their disciplines. They have a comprehensive understanding of their subjects and detailed knowledge of their subjects' intricacies and skills. How can they withhold these things? And if students do not get the point the first time, what can teachers do but give again or give more? By the very terms of the encounter, students lack something that the teacher has in abundance; thus, every activity in which the teacher does not give this "something" must play a secondary role. Teachers assume that their principal task is one of improving the ways in which they express their expertise: Clear and precise explanation can always be articulated and sharpened; penetrating questions can always be made more penetrating.

The social component of the sense of fixedness derives from the teacher's role of group leader. The literature on the social psychology of small groups (Slater, 1966) demonstrates that most groups in their early stages can be described precisely by the two-person model; that is, each member acts as if he or she were in an exclusive dyadic relationship with the leader. It is a long and arduous process for group members to break their dependence on the leader and to form mutual bonds with one another. But teachers are more than just leaders. Their expertise in the subject matter exacerbates the problem that all leaders face if they want to distribute responsibility to the individual members of the group. The teacher is the very embodiment of the group's goal—the subject matter. There is no doubt that teachers have all the answers. Why should students look to anyone else?

These forces hold teachers in place with their Atlas-like burden of responsibility. They prevent teachers from sharing some of their responsibilities with the group's members. But some teachers do try to make such a change. They allow individual students to take turns at leading the class, they form study groups of various kinds, they try to restrict their role in discussion to that of facilitator or resource person. And, when they encounter the intensity of the forces, they find them-

selves pushed back into the center by a cognitive force, by a social force, or by both.

The most striking consequence of allowing students to interact directly and collectively with subject matter without the teacher's mediation is that the teacher comes face to face with students' own partially formed and inadequate conceptions of the subject. As experts with carefully articulated and elaborate views of their subjects, and as representatives of their disciplines, teachers are bound to feel a strong personal discomfort in the presence of the kinds of imprecise, loosely connected, unintegrated comprehension that students have of their subjects. Thus, the very act of opening up and listening to students forces the teacher-expert back into the middle, because imprecise explanations cannot go unrefined, because all the connections have to be made, and because final conclusions have to be drawn. In short, the teacher returns to the center in order to mediate between the students and the material.

For their part, students are likely to resist the teacher's attempt to step out of the middle because they perceive this switch in roles as an attempt to abandon responsible leadership. Students who feel abandoned resent their teacher, and consequently they do not develop the enthusiasm necessary for learning. This in turn leads the teacher who tries to innovate and share responsibility for learning to become cynical about students. The primary reason for this sequence of reactions is that when teachers switch from the role of expert to the role of helper, their expertise gets lost. If students have no way to draw on the teacher's knowledge of the subject, it is natural that they learn less. The attempt to break the two-person model and to cause students to draw on the resources of the group can easily lead to a lowering of the intellectual goals of the class, in the eyes of both teacher and students. And since this is usually judged to be unsatisfactory, the teacher returns to the role of expert, and the students settle back into their seats to take in the teacher's illuminating words.

We have described the way in which the cognitive and social aspects of the two-person model keep teachers in the middle of their classes, carrying all the burden and responsibility of the course on their own shoulders. We have also described how the forces that typically operate on teachers, both from within and without, tend to move them back to the center when they try to leave it. People approach teaching with a set of conventional beliefs about the teacher's role that are strongly reinforced by being in the middle. Years of experience then fuse these beliefs into a whole, so that they cannot be differentiated, questioned,

or tested. Instead, they form a complex—a monolithic and undifferentiated state of mind that gives teachers so much responsibility for everything that goes on in the class that they cannot move—a state of mind that we call the Atlas complex.

But a teacher who takes responsibility for all that goes on in the class gives students no room to experiment with ideas, to deepen their understanding of concepts; or to integrate concepts into a coherent system. Most teachers agree that these processes, together with many others, are necessary if students are to understand a subject matter. Any teacher will say that the best way of learning a subject is to teach it—to try to explain it to others. Scientists agree that intellectual exchange, discourse, and debate are important elements in their own professional development. Almost anyone who has learned something well has experienced the particular potency that a collaborative group can have through its ability to promote and make manifest such intellectual processes as assimilating experience or data to conceptual frameworks, wrestling with inadequacies in current conceptions, drawing new distinctions, and integrating separate ideas. The evidence that collective work is a key ingredient to intellectual growth surrounds us. Yet, to judge by the typical college course, most teachers do not believe that it is either appropriate or possible to foster these important processes in the classroom.

Professor C

Before we examine how the Atlas complex can be dissolved, we will describe a class that does not have a teacher in the middle and that still benefits from the teacher's expertise. This should show that change is possible—that the forces holding the teacher in the middle are not irresistible. It should also illustrate the point of view that we wish to advance in the next section.

Professor C walks into his class of forty students and hands out a dittoed "worksheet" to every student. The students continue to chatter as they glance at the worksheet, start to form groups of five (as the worksheet instructs them to do), and seat themselves around the tables in the room. Gradually, the noise level falls as students read through the worksheet. Then, it rises again as they begin to engage in discussion with one another over the questions on the sheet. After a few minutes, Professor C joins one group, where he quietly watches and listens, but does not talk. A few minutes later, he moves to another group. After listening to the discussion there, he suggests to group members that they are not getting anywhere because they misunder-

stand the example given in the first question. He tells them to draw out in pictures what the example describes, and as they do so, he makes clarifying comments. He listens as discussion resumes, then moves to yet another group. Meanwhile, many students are not only talking but also making notes as they do. Some groups are engaged in heated discussion; others are quieter, as individuals pause to think or to listen to a member who reads a passage aloud from reading that accompanies the worksheet. In one way or another, however, all the groups are working with the sequence of questions and instructions contained in the worksheet.

Professor C may seem to be a teacher with no real function; indeed, he may even seem irresponsible. But keeping a class of forty students actively involved with course material with a minimum of direct support from the teacher requires an artfully written set of instructions and questions. Professor C puts all his expert knowledge, his most provocative questions, and his insights about how students comprehend the material into the worksheets. Breaking his own finished knowledge of his discipline down into its component processes, then provoking students to discover these processes takes at least as much intellectual work as a finely crafted series of lectures would require. But, having done this work and set the students to interacting with one another and with the worksheet, he becomes free to perform a number of helping teaching functions as well as to expound, probe, or press on the basis of his expertise. He can also take time just to listen to students. He is free to choose. (For a more complete description of the worksheet approach and its uses, see Finkel and Monk, 1978, 1979.)

Professor C revises his worksheets after watching his class interact with them (this is where listening becomes important), just as Professor A revises his lectures every time that he gives them. The difference is that Professor C bases his revision on direct observation, while Professor A must rely on his own perception of how he has done, supplemented by a few polite questions and test results. Like Professor B, Professor C always feels that livelier and deeper conversation would result if he only could ask better questions. The difference is that Professor C has had the opportunity to be an outside observer of students' conversation without the concerns of a discussion leader; thus, Professor C can gain a clearer view of what actually happens than even most seminar leaders can.

We offer the example of Professor C not as a model for Professor A, Professor B, or any other teacher to imitate. Answers to teaching problems are never easy. The example of Professor C shows that a teacher can be in his class without being caught in the middle. We will

use this example to illustrate a principle that lies behind a variety of possible course restructurings and that helps to relieve the teacher of the Atlas complex.

From Roles to Functions

Professor C serves as an expert in his class primarily through his worksheet. Since students focus on it and not on him, he is free to give clear explanations, to press for clearer answers, and to encourage hesitant students. The power of this approach stems from a fundamental differentiation of the teaching functions that make up the role of teacher. When these functions are differentiated and then distributed throughout a course, many of the constricting features that come from the role of teacher disappear and with them, the peculiar symptoms of the Atlas complex.

Brown (1965, p. 153) observes that "roles are norms that apply to categories of persons." In this case, the category is *teacher*, and anyone who fills that role is expected to follow a certain set of norms in his behavior. Moreover, roles do not exist in isolation; they are defined in interlocking sets, within the context of a given institution. In defining the role of college teacher, we necessarily define norms for college student as well. Social life flows smoothly because of these sets of roles. People enter the social arena knowing in advance what to expect; they have to be confident that the range of unpredictable behavior is strongly limited. Teachers who want to teach in a strikingly different way, for pedagogical reasons, usually find themselves crossing the limits of their role, violating some of the rules that define it. Students will be the first to force them back into doing what teachers are supposed to do; that is, into the conventional role of teacher. Thus, the very predictability that we need from roles can become so rigid by force of habit that the roles of teacher and student become overly restrictive and actually exclude the usual needs of cognitive life in the classroom.

Suppose now that teachers focus not on how they are supposed to behave but on the job that they are supposed to accomplish. Most teachers understand this job to involve such things as getting the students to understand a given theory, having students examine certain phenomena from a new perspective, or teaching students how to perform new skills. Each goal leads to certain mental processes that must be carried out. These processes include organizing and synthesizing a variety of specific facts, ideas, and events into a general scheme; engaging the particulars of a context or experience while maintaining a per-

spective on its general qualities and compressing and crystallizing connections made within the discipline or between a discipline and the area that it describes. Each process requires a different form of work from students and a different form of assistance from the teacher. A teacher operates in quite different ways depending on whether students are to organize and synthesize, to engage, or to compress and crystallize. Even within each mental process, the teacher has to make choices to act. We call particular ways of operating in a classroom *teaching functions*.

For instance, to get students to organize and synthesize specific facts and events into a general scheme, the teacher can perform such teaching functions as asking students to give their current interpretations of the specific facts and events, laying out projects that allow students to devise their own schemes, responding to students' work, and presenting the teacher's own organizing scheme.

In designing his worksheet, Professor C performed such teaching functions as interpreting student misconceptions, setting goals and tasks, and analyzing his subject matter. In his classroom, Professor C performs such teaching functions as listening to students, redirecting them, clearing up misunderstandings, and supporting students. Notice that analysis of classroom roles ties behavior to persons (teacher, students), while analysis of teaching functions ties behavior to tasks that must be accomplished. Some teaching functions can be performed just as well by students as by the teacher. Other teaching functions can best be performed by groups of students or even by combinations of student groups. As we show in the next section, a conscious decision about which teaching functions are to be performed by whom and where can be made as part of the design of the organization of the course.

The perspective of teaching functions makes the strong negative effects of thinking in terms of teaching roles quite clear. First, any role is inevitably confining. Many teachers acknowledge that a particular teaching function should be performed but that it is not. They say, "Such things are not done" or "Students won't stand for it." This is only a way of saying that their particular role does not permit it. And, because the role does not permit it, most teachers are not inclined consciously to articulate what teaching functions they deem most important for their students' learning.

Second, the language of roles itself creates dilemmas about the ways in which people are to behave. Teachers ask, Is my role of teacher one of expert or helper?, as if they must choose between these two roles.

The conflict disappears if the teacher performs functions that require expertise at one time and place and functions that require helping at others. To say that students must be *independent* (bold, skeptical, imaginative) and *dependent* (relying on the accumulated knowledge of past generations) sounds like a contradiction, because it is couched in the language of roles. The adjectives prescribe contradictory norms for a category of persons. But, if we say instead that some of the activities in which a student must engage require independence and that others require dependence, then the contradiction disappears. There is a time and a place for both independence and dependence when each characterizes a mode of engaging in a specific activity. But, as role descriptors they contradict each other.

Third, roles tend to generate their own work to be done, so that the teacher's activities are determined not by tasks but by roles and expectations. Thus, Professor A becomes a performer caught up in such functions as polishing, timing, and motivating, while Professor B becomes a stage manager of discussions who looks for the perfect sequence of questions so that the actors can play their parts.

Fourth, every role includes several distinct functions. When these functions are performed simply as part of the role, they tend to blur and merge; they are performed simultaneously, but none is performed particularly well. In trying to get feedback after he has spent forty-five minutes driving his points home, Professor A is fooling himself. Likewise, in trying to manage a discussion among students while maintaining high standards of rigor, Professor B performs neither function. A lecturer who gives illuminating examples to stimulate students' thought processes and then immediately gives her own perspective to explain these examples can think of herself as engaging students in a particular context and inviting them to form their own view of it, which she will then enrich. But, for students to perform such an activity in fact requires behavior from the lecturer that the students would tolerate. Thus, Professor B's students do not really go through the process, and she really performs just one function, exposition.

Distributing Teaching Functions in a Course

While most teachers acknowledge that their role is confining and wish to perform a wider array of teaching functions, they find that good intentions, even when backed by strong resolve, do not go far to promote change. To effect genuine change, a teacher must first differentiate teaching functions, then distribute them in the course so that

the responsibility for learning is shared with students. Only then can the Atlas complex be dissolved. To do this, the various parts of the course must be clearly distinguished so that the functions appropriate to them can be distributed.

When we think of making structural changes in a formal organization, such as a corporation, the candidates for transformation are immediately apparent. For instance, we can alter channels of communication, or change the authority relations between officers, or merge or divide departments. Like a corporation, a course is a social system. However, when it is viewed simply as a teacher and some students, it seems to lack the structural components that a corporation has, and thus it seems to lack candidates for transformation.

To distribute teaching functions, the teacher needs to distinguish three components in his course: specific activities that serve general teaching functions, people responsible for performing these activities, and the "places" in the course where these activities are performed. For instance, a teacher who wants to perform the teaching function of giving his own perspective on the subject can choose among such activities as these: giving a lecture, having students study a few key examples that exemplify the significance of his own perspective, and asking a highly convergent sequence of questions that point to that perspective. Further, there are many choices as to who performs each particular activity. The typical choice is between the teacher and individual students. However, there are additional candidates for this responsibility: Small groups of students working together can take over some teaching functions. In some instances, the entire classroom group can do so. Finally, there is an enormous array of "places" in any course where various teaching functions can be located. The obvious places include class sessions, tests, homework assignments, office hours, lectures, and quiz sections. These can be refined to include such places as Friday's class, critiqued but ungraded homework, files of past tests, required office conferences, and make-up tests.

Once teachers have differentiated the teaching functions to be performed and consciously distinguished the components of their courses that can be operated on, then they can make local decisions about the specific activities used to realize these functions, about who performs each function, and about where in the course the activity should be carried out. With this strategy for change, teachers can preserve existing activities that already serve important teaching functions and test new activities that may be able to take the place of activities that have not worked out well.

Faced with the complexities of the course as a social system, teachers may well wonder how to get started in such a program for change—particularly since, by our analysis, teachers themselves play such a dominant role in the system. Student learning groups, in which small numbers of students work together in a class without constant assistance from the teacher, can restrict the problem of systematic change to a problem of manageable size. Professor C divided his class into small groups that worked together for two hours, guided by the instructions and questions on the worksheet. Professor C performed many of the expert teaching functions by writing the worksheet, so that he became free in the class to perform many helping functions. Working in groups, the students perform such functions as asking and answering questions, giving support and reinforcement, and providing fresh perspectives on the subject. Each small group of students serves other important functions as well, such as providing carrying energy and bringing out low participators. But, the concept of learning groups is extremely elastic. Learning groups can be permanent or temporary. They can work for five minutes, or two hours, or even longer at one time. They can be highly structured by the teacher or not. They can be required to devise group products, which are assigned group grades. Or, they can serve primarily as support groups for individuals.

Teachers who decide to use learning groups as part of a class, no matter on how small a scale, have taken a giant step out of the middle of their class, because in carrying out their decision, they distribute teaching functions, which forces them to deal with all the key issues involved in such a move. What concrete activities will be carried out in the groups? Who will have the responsibility for these activities? At what time and place in the course will learning groups be used?

Teachers who feel that a commitment to learning groups is too radical a step can take smaller steps in the same direction to divest themselves of some of their Atlas-like burden. For instance, Professor A could begin by distributing his beautifully polished lectures in advance and instruct students to read them as preparation for class. This puts him in a position to use the class time as an opportunity to serve a new teaching function. Since he is concerned with eliciting intelligent and informed questions from his students and with having a chance to respond to them, he can use the class period for just this purpose. He can have students bring prepared questions to class, where they can form the basis for a discussion, or he can simply respond to them publicly. He can take yet another step and use small temporary groups of students to drive the intellectual processes necessary for the assimila-

tion and organization of ideas derived from his lecture. To do this, he can distribute a short list of conceptual questions along with his lecture, which each group of students can be responsible for answering. Student work of this nature would enable him to perform yet another teaching function: critiquing without grading the students' response to his lectures. This teaching function would not only be beneficial to the students; it would help Professor A to revise his lectures, because it would give him a sharper view of his students' conception of the subject matter.

In much the same way, Professor B could write her telling and penetrating questions out for students to work on as they do their reading. To reduce her dominant role in the seminar, she can choose a small number of teaching functions to perform during class, to the exclusion of all others. If she still feels that her expertise is not being drawn upon sufficiently she can designate a segment of the seminar (the last fifteen minutes of each class or the last class of each week) in which she answers student questions or comments on student answers. However, she must do this in such a way that students see clearly that the expected behavior for this segment of the seminar is different from the behavior expected in the rest of the seminar.

In the preceding paragraphs, we have made a number of recommendations about how a course can be changed by distribution of teaching functions. However, it is important to remember that, as a social system, a course is not just a variety of distinct structural components; these components are strongly linked. If a change in one part of the system is to have lasting effect, the teacher must consider how this change interacts with other parts of the system. Change that is not integrated into the system will either be isolated and nullified, or it will distort the entire system. For instance, if learning groups are introduced, then their relation to the evaluation structure of the course must be made very clear. Exams signal to students more clearly than anything else what the teacher really cares about, and students direct their behavior accordingly. Thus, if group work is to be taken seriously, the results of group work must be tested by exams. That is, there should be a clear payoff to students for putting their energies into the new activity. Similarly, if the teacher deems collaborative work among students to be important and the teacher works hard to foster it in class, it makes no sense to grade exams on a curve, since students see such grading as a clear message that they are competing with one another.

However far one goes in distributing teaching functions, it is extremely important to set up clear boundaries around the various

"places" in the course to which distinct teaching functions have been assigned. Places can be marked off by such means as a designated day of the week or time in the day, a different classroom format, a different medium, a different physical location, or a different mode of evaluation. As long as teachers are absolutely explicit about the nature of the different tasks to be performed in the places marked off by such boundaries, they can ensure the predictability of behavior that people require when they drop stereotypical roles. A lecture carefully organized to give a highly polished overview of the subject indicates one set of behaviors for teacher and students, while a class period in which students work in groups on their first tentative explorations of the subject calls for another. A separate class period in which a panel of students presses the teacher with what they see to be the most important questions on the subject leads to yet another kind of behavior. As long as such class periods are clearly marked off, the diversity of expected behavior can create no confusion. There is a time and a place for students to be receptive and passive, curious and imaginative, challenging and doubting. Similarly, the teacher can assume an authoritative voice for a lecture, become a listener and helper in a worksheet class, and answer questions thoughtfully and carefully before a panel of students. As one boundary after another is crossed in a course, teachers and students can alter their behavior quite radically. All flows smoothly—just as long as the boundaries are absolutely clear.

Dissolution of the Atlas Complex

The perception that each course is in fact a miniature social system is perhaps the key to teachers' dissolution of the Atlas complex. The Atlas complex is a state of mind that keeps teachers fixed in the center of their classroom, supporting the entire burden of responsibility for the course on their own shoulders. This state of mind is hardened by the expectations that surround teachers and by the impact of the experience that results from them. A direct assault on the complex is doomed to fail.

The solution that we propose here is indirect. By focusing teachers' attention on their course as a social system, not on themselves as filling a role, we suggest that teachers can take specific, concrete actions that enable them to share responsibilities in the classroom. To do this, teachers must distinguish the various components of a course—the structural parts that comprise the social system—and distribute teaching functions into them.

There is a continuum along which the teacher can make such changes, ranging from small moves that share responsibility with students as individuals, to use of learning groups, which allows small subgroups of students temporarily to assume a number of different teaching functions, to delegation of major responsibilities to the entire group. We have found that the middle course of action—learning groups—is the most effective way to begin, for it opens up a great number of local possibilities for change while allowing the teacher to keep the fundamental structure of the curriculum and teaching intact.

Most teachers start with a small change, which enables them to experience their teaching in a different way and enriches their view of their course as a social system containing diverse teaching functions. This step leads to alterations in their own and their students' expectations of themselves, which deepen and expand their sense of further possible steps for change in the course. Each further step alters both their experience of teaching and their sense of what is possible. Only in this way is it possible to dissolve the Atlas complex.

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