Alfred Korzybski Memorial Lecture

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Creativity and the Evolution of Culture

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Introduction by Dr. Rachel Lauer

When Charlotte Read asked me to introduce Ellen Langer, I felt especially privileged. Although we had not met before tonight, I long felt a kinship with her as a result of reading her books on *Mindfulness* and *The Power of Mindfulness*. For us in general semantics, finding kindred spirits may not be that easy. In one book that she edited called *Higher Stages of Human Development*, I resonated with a statement by Levinson, who said, talking about us, "A more-developed self is of little avail and may become a source of deeper pain when it cannot find expression in the life structures."

We have all tried for years to create and find life structures, especially in the education system. Even more strongly, I believe we all resonate with the three major points that she makes so well. We need to work at creating more categories; we need to be more open to new information; and we need to be aware of many perspectives. Don't these sound consonant with many of our own formulations, such as nonidentity of the elements and categories, consciousness of abstracting, awareness of epistemic orientations? But most of all I am intrigued by her thoughts and her research that states human development may be unlimited. Just think, those of you who are, like myself, getting a little older, we may have years of development ahead of us.

Being kindred spirits is one good thing, but we are in the presence of a true scholar. Her credentials are about as unlimited as her theories and studies. Since 1981 she has been a professor of psychology at Harvard, and that is no mean attainment right there. She has written or co-authored at least nine books, multiple book chapters, at least 56 articles, and won eight major research grants. I'll have to find out how you [addressing Dr. Langer] did that.

In addition to her Guggenheim fellowship, the American Psychological Association gave her an award for distinguished contributions to psychology in the public interest. That's a big one. They cited her for her "courageous, stimulating and unique contributions to the profound effect of increasing mindful behavior". Dr. Ellen Langer, we are honored to have you as our guest speaker and distinguished visitor for tonight. Welcome!

Address by Dr. Langer

Thank you, Rachel. I was having such a good time listening to you talk about me that I forgot that I was going to have to get up and do something here.

I feel in some sense that I am going to be

preaching to the converted, and that is unusual for me, but could be fun. I think that at the least if there is nothing new that I tell you, you should enjoy some of the data that supports all that you've been saying for years. Hopefully we'll be able to teach each other something new.

So what is that? [Here she presents an image on a screen that can be seen in different ways.] Ah, isn't that cute? So, it's a **cow**—got it?

Take a look at that for a little while. OK, now what's interesting—now the idea that I'm making, which is not so different from an argument you are used to (but the question is how many of you—even knowing the argument—are still vulnerable to the effects), is that there is a world out there that can be experienced in many different ways; however, typically, as soon as we call it by some name [such as cow] we become trapped, and all of the ways that you might have been able to see this in the past, had you not seen it as a cow, are now gone—forever—and we'll see, I'll come back here if you invite me five years from now, and I'll put this here and you'll tell me whether you don't see the cow when you can't see anything other than the cow. That's what happens to all of us, that we take a world that is potentially meaningful, interesting—endlessly interesting—and trap ourselves, and we're oblivious to it.

Play along with me for a little while, OK, and I'll show you why I'm asking you to. I'm going to show you two figures. Just tell me which one you like best, OK? So here's one. OK. And here is another. So how many of you like the first one better? How many of you like the second one better? How many of you won't play [laughter]?

Alright, now, what I want you to do . . . Who wouldn't play? OK, for those who won't play, tell me how many cubes there are—just yell it out. [various guesses] One, two, three, four, five, six, seven, maybe. Maybe . . . OK, and how many are there here? [Many in audience say six.] OK, it's gonna be fun!

Hey, here's an easy one, when you read this out loud with me. Let's read! "I love Paris in the springtime." [The text said, "I love Paris in the the springtime."] Ah-ah-ah-ah, ah-ah. So you see, knowing, *knowing* that the map and the territory are not the same thing and all that stuff somehow isn't enough to protect us, right? Because a number of you missed the doubled "Paris in *the the* springtime".

The argument goes that you agree with in principle, that in principle there is a lot of the world (that is there to be experienced) that we are not experiencing. We don't see what is there to be seen, we don't taste it, we don't hear it. The problem is that we are oblivious to the fact that we are not tasting it or seeing it. You don't see it. You don't know that you don't see it. And that is part of the problem with teaching people about being mindful. When you are mindful you are mindful, when you are mindless you are mindless. You are not mindful of being mindless, or else you would be mindful. So you don't tend to have the phenomenological experience of being mindless.

We'll play a little more and then we'll go back to the slides I've already shown you. So what do you see? You're not so sure now, wonderful! Good. How many of you see one figure? How many of you see two? You're able to see two! Wonderful. How many of you see three? How many of you see four? Ah. So what do we have here. First we have a young woman. Here's her nose, her eye, her chin. It's actually not a young woman; it is an old woman who has had a lot of face work done. Now we have an older woman. Here's her nose, her mouth, and her chin. And there is also a man there, or a woman in drag. Here is his nose, here is the moustache. Can you read this for me? "I love Paris in the springtime." Good, that is the way we should read all the time.

All I'm going to say is that the bottom line is that there is a power in uncertainty, and what we want to do is to exploit the power in uncertainty. Not just language, but all of our norms,

virtually everything that is designed for us in the world out there leads us to deduce uncertainty.

Well, what happens is that it [mindlessness] is teaching us to reduce the uncertainty by confusing the stability of our mind-sets with the stability of the underlying phenomena. Things are changing. We want to hold it still, hold it still and deal with it rationally, do all sorts of things, but it is changing, and what I just said should make more sense in a little while as we go over some of these.

So what did we say about this, those of you who were willing to say? Now, want to see something interesting? What is this? Oh, my goodness, can you see it, shall we do it again? So in one we have what seems to be six, and in one we have what seems to be seven; please look at it from a different perspective, reverse the perspective, and they are the same.

Things look different from different perspectives; typically when we are being mindless we are responding within a particular perspective, again oblivious to the fact that there are alternative perspectives. Part of the problem with this mindlessness concept is that mindlessness tends to come about by default, not by design. It is not the same thing as Freud's unconscious; it is not motivated. It is not that you can't bear looking at that thing, it just doesn't occur to you to look at it.

Let's look at a few more. Did we go over all of these? Oh, yes, OK. How many of you preferred this one? Ah, afraid to admit it. What a group, OK. Now this one here, and probably no surprise to you. They're also the same, but they're not the same. Right, they are the same and they are not the same.

OK, what I want to do is just tell you a few stories to make sure that now that most of you at least have had a little bit of the phenomenological experience of being mindless, will know it better informally [from the stories], and then I'll define mindfulness and mindlessness more formally and tell you about some research. And go from there.

A person is seen making roast beef. What does she do? She cuts off a little piece, puts the rest of it in a pan, and cooks it. "Why'd you cut off that piece first?" "I don't know, that's the way my mother always did it." They went and they got her mother. She also was making roast beef. She cut off a piece, took the rest of it, and put it in a pan and cooked it. "Why'd you cut off that piece?" "I don't know, that's the way my mother always did it." Well, they had enough of this. They sought out the original girl's grandmother, said, "Look, your daughter and your granddaughter are making roast beef. They said they make it just the way you do. They cut off a piece, put the rest of it in a pan, and cook it. Why do you cut off that piece first?" And without skipping a beat she said, "Because that is the only way it will fit in the pan." [laughter]

Mindlessness is not stupidity. It is behavior that makes sense at time one, the context is frozen, things have changed, but the person is oblivious to the change, and at time two, they are behaving in ways that don't seem to be completely sensible to us.

I made a purchase; I gave the salesperson my credit card. She saw that the credit card wasn't signed, she asked me to sign it. I signed it. She then ran it through the credit card machine, gave me the credit card slip, and asked me to sign it. I signed it. She then compared the two signatures.

OK, now again, under other circumstances this would probably be sensible. Under this circumstance it didn't immediately seem sensible, and it made me think that she was totally oblivious to the fact that there was something peculiar here, and how could I be so sure that I too wasn't acting in that same way, right?

And I find not surprisingly, or maybe actually it should be surprising, that there is an awful lot of mindlessness. I've been studying this for 30 years. I'm somebody who values consciousness, who's looking all the time, and so on, but still, much of the time I behave mindlessly. And so if I do it, then you do it, that's the

basic rule that I use with anything I do. That is, mindlessness is pervasive.

The way most of us understand mindlessness is that mindlessness comes about after repeated exposure to something. You just keep doing it, and after a while you're not there.

Even though you don't have the phenomenological experience of being mindless, you're aware of it because those of us who can drive have driven and at some point you find that you were here and now you're there, and you're not quite sure how you got there. You know that there is something going on that you don't quite understand.

That's interesting, but what is more interesting, maybe even less interesting to you people here because you know it but most people out there don't, is mindlessness that comes about on initial exposure to information. And I'm going to spend a lot of time talking about this.

There is a way that we are taught about the world that sets us up to be mindless in the same way that repeatedly doing something sets us up to be mindless.

It's interesting. A colleague of mine collected these data that are wonderful, that are demonstrations of mindlessness.

Imagine this: That you check into a hotel. OK, so you're over here; the person who is going to check you in is here. And the person says, "How are you?" and whatever. "Yes, all I need to do is get the forms for you."

The person now bends down, behind the counter, to get the forms; another person comes up and gives you the forms. What happens is that people have no idea that it is not the same person.

If I ask for directions, and you start giving me directions, and now two people come by carrying a piece of wood about the size of a door. And they come by, and they come between the two of us, and so now I change places with somebody who is carrying this door, and walk off; and you continue giving me directions because you're oblivious to the fact that it is not the same person.

The way that we see only what we are set to see is mind-boggling. The demonstration that [my colleague] has—that is most peculiar I think—is he has people that are going to be playing a game of basketball. The black team and the white team. And your job when you are doing this is to get some idea, to count, how many baskets are being made in this game you are watching. Now, what happens, and it's very hard to believe, except that you just had a little experience here yourself—in the middle of this, somebody dressed as a gorilla—it's a gorilla, whole costume—walks in front of you, right in the middle of the basketball game as they're playing basketball down there—and I have this gorilla costume on—and walks off. People do not see the gorilla.

Now the problem is when you are looking at it, expecting to see it, you see the gorilla; so it's hard to imagine how somebody else could not see the gorilla. In the same way, it's hard to imagine how somebody could not see the double "the", and so on.

There are lots of examples of this. I think that one I am going to tell you about, that I just learned the other day, may save somebody's life here.

When I learned to drive I learned that when you are on a slippery surface, what you should do is pump the brakes. Well, that's right, for the kind of car I learned on. Now with anti-lock brakes, the way you are supposed to stop the car is you push it [the brake pedal] down and you hold it, which in the kind of cars I used to drive would send me into a 360-degree tailspin, or whatever.

All right, so again, you see that you freeze the context. If all of these things don't change, everything is fine. But things are always changing. They become not so fine.

This thing we call mindlessness we can describe, define, as a situation where a person is trapped in a single perspective, the past is

over-determining what you are doing in the present, you are insensitive to context. Your behavior is governed by rules and routines that can't change.

When you are mindful, you are actively noticing things. You are actively drawing distinctions, forming categories. When you are mindless, you're relying on the categories and distinctions that you have drawn in the past. When you're mindful, you're sensitive to context. When you're mindful your behavior does not have to be chaotic. It can be rule and routine *guided*—it's just not rule and routine *governed.*

So the most important part of this thing called mindfulness is *actively noticing new things.*

Now, remember I said that all of this is going to say at the end that you want to respect uncertainty. How many of us think that most things, no matter if you look at them for a while, they're old? You know them, right? As soon as you think you know something, then you are treating it mindlessly.

Relationships. I think this is kind of funny—I've looked at this—and just at the tables here we were talking a little bit about relationships. I don't understand when you're living with somebody for twenty years why you would think that the relationship has to be old. You know that your relationship to your children, to pets, to friends, just gets better and better, right? Your relationship to your children: It's not, "Now that you're twenty years old, I've seen you before, I know everything that you're doing."

So there is a way that our expectation that we are going to be able to know something then leads us to stop drawing these distinctions. And when we stop drawing these distinctions, then we are responding to it mindlessly.

And there are, as I said, two ways that we become mindless over time to our initial exposure to information.

Does anyone here know their cholesterol level? A brave person after all we've been through. And would you tell us what it is? 160. And when did you have it checked last? A year and a half ago. And you haven't eaten or exercised since. OK, so the point being that if you never check it again, then your cholesterol level will always be 160. That is the way all of us treat the information that we're given. We have it, we know it, that's it. As soon as we know it, we don't have to continue assessment. And again, by doing that, we end up giving up a great deal of control.

So for, I don't know, 25 or 30 years or so, I have been conducting research on this concept of mindfulness, and I'll just give you a hint of some of the findings that we have in many different studies of what makes people mindful in various ways. Take measurement.

We find that mindfulness increases positive aspect, increases immuno-globulin A (important for immune functioning), decreases immuno-globulin E, which is important for allergies, increases longevity, increases competence, creativity, charisma, memory, decreases burnout, and the list goes on. Almost anything you plug in there, it's better to be mindful.

So, I want to talk to you about this mindlessness that comes about on a single exposure to information.

I was at somebody's house, and they made me dinner, and it was very nice. The fork was on the right side of the plate.

I felt like some national law had been violated. The fork goes on the other side of the plate.

Now I can generate hundreds of reasons why the fork is probably better off on the right side of the plate. This is a person I cared about. I tend to value the fact that I'm a non-evaluator. Still, the fork goes over there. And the hardest thing for me during the whole dinner until we actually started eating was not moving the fork to where it really belongs. And I started to think, well, why do I feel that the fork goes on the other side of the plate? Did we engage in long discussions about fork placement when I

was growing up? No, no, what happened was my mother said, "Here's where the fork goes." And that was it.

Now, it may seem a silly example—but it's profound. Because it's not tied to a whole belief system; so I could say, "Well, if I change this, then everything is going to crumble." My life could go on just perfectly, and I could believe that the fork could live just as easily over here as over there—but it feels wrong. The way that we learn about almost everything is in this very simple way. Somebody says, "This is what it is." This is a cow. Five years from now it will still be a cow. In that picture I'll show you again later, we'll see if that is still true.

We did some research, way back when, where we had people tested for this disorder—a made-up disorder we called cromosyntosis. And cromosyntosis was likened to color-blindness, in that one could have it without knowing that they had it.

You're reading about it, and while you're reading there, you find out that 80 percent of the people we tested, people just like you, have cromosyntosis. In another group, the people are told that 10 percent have it.

What does that mean? With the 80 percent group, it means, "You are likely to have it." For the 10 percent group, "You're not very likely to have it."

Then what we did is we asked half of each group to just think about what it would be like having cromosyntosis, so maybe you'll come up with something that'll be helpful to people who have this disorder. Half of them were not given this.

So if you think about what I just said, these two groups are asked to think about things, these two groups are going to think about them because they're relevant. This group here has no reason to take in the information. And the presumption, the hypothesis was, this is the group that is going to get zapped. This is the group [the 10 percent group] that has no reason to question it. They are going to take it in.

If you take in information without questioning the information, you become vulnerable to the substitutive implications of that information at a later time. You can't change that information around.

If I tell you, when you're 15 years old, that when you get old you lose your memory, who cares at 15 what's going to happen when I'm 40, 60, 80, 100, whatever. So I take it in. I freeze it. Now what happens is when I get older, I expect to lose my memory. Then it becomes a self-fulfilling prophecy. It doesn't at that point occur to me for it to be otherwise.

That's an important line with respect to this mindless work. Most of the time when we are mindless, it's just not occurring to us to change the information. It's not that we *couldn't* change it, if it occurred to us, but it doesn't occur to us. That will become clearer again when I talk about some of the studies.

OK, so everybody reads about cromosyntosis in one of these different ways. You take a test, you score the test yourself, everybody finds out they have chromosyntosis. Oh, my goodness.

Now what happens is you have to take some tests that require abilities that people with chromosyntosis don't have. And what happens is that this group here performs less than half as well as the other groups. And we asked everybody, "Tell us, what do you know about chromosyntosis?" Everybody learned the same information. They just took it in differently. There is a way that people naturally, when they are in the pursuit of certainty, take in information, freeze that information in such a way that it doesn't occur to them to go back and reconsider it. And when you try to go back, as with that fork, it's very hard to do. So you want to *prevent*, because *cure* is a very difficult thing.

So I was on this big saddle horse, and I was at this horse event, and this man asked me if I would watch his horse because he wanted to get the horse a hot dog.

Well, I said to him—I didn't mean to sound

obnoxious—but I said, "Don't you know horses are herbivorous?" And I don't think he knew what herbivorous meant, nor did he care, but it was wonderful because he went and he got the horse a hot dog, and the horse ate the hot dog. And I loved it—that almost everything we know, we know 'incorrectly', we'll say—we know in a way that limits us—that horses often are herbivorous. It probably would depend on how big the horse was, what the hot dog was stuffed with. Is it a 100 percent Kosher hot dog? Is it a turkey hot dog? It might matter. Had the horse eaten in the last week—a number of variables that we don't teach when we're teaching. When we teach, we teach an 'is' world. But the 'is' world again leads us to confuse the stability of our mind-sets with the stability of the underlying phenomena.

OK, so what I want to argue, and describe in this book, *The Power of Mindful Learning*, is that whenever we try to learn anything, we call up certain mind-sets about learning, and these mind-sets virtually assure mediocrity. It doesn't matter whether we are trying to learn how to play golf, how to be a better lover, how to do history, whatever it is. As soon as you say to yourself that you want to learn—there are things that you think you should be doing—that if you do them, it will hurt your learning.

OK, so these are the myths that I think we have about learning, that I'm arguing that these things prevent, hurt our learning, rather than help.

OK, *practice makes perfect.* Isn't that what we're supposed to do? Practice makes perfect. The way most of us practice is, keep doing it till you don't even have to think about it. Oh, you don't ever want to get to the point where you don't want to think about something.

It's also interesting that when you're first learning a task, you don't know anything about it, it's a great crazy thing to want to freeze your understanding of it, so that later when you know something about it, it won't occur to you to go back to the beginning.

The way this is usually understood is learn the basics so well that you don't have to think about it. Now, hear what I said, "Learn *the* basics." Whose basics?

All right, now I'm looking for—is there a very tall man here? OK, good. What's your name? OK, it's unreasonable, even if we forget the gender for the moment, the age difference, the difference in our body build, it doesn't make sense that we should learn any physical task in the same way. That if I'm going to play basketball, and Larry Bird's hand is twice the size of mine, his legs are longer than mine, everything about our bodies is different, why should we play the game the same way? But by telling people, 'the basics', we forget that what might constitute the basics for any task, if you want to talk about basics, should vary considerably among different populations. The more similar you are to the people who've been teaching the rules, the better you'll do at following the basics.

If I'm playing tennis, and I learned to hold the tennis racket like this, that's great as long as everything is as it was when I was first learning it. Now if my back hurts a little bit, or I burned my hand over here, or the damn racket is so much heavier than my own racket, I couldn't play it in the tennis courts of New York. So that now, I shouldn't hold the racket the way I held the racket before—that's crazy. What I'm doing is giving up all of my idiosyncratic experience to hold it that way.

I went to a tennis camp and it was amazing that when I came home, I thought none of those pros—I was watching the U.S. Open—served the right way.

Now, nobody who has risen to the top of their profession is going to be doing it the way the basics were derived, because those basics were derived by other people to meet other needs.

So what we did was—now I'm one of those people who don't like wasting things—I get this shopper with a catalog in it. This is a thing, I

don't know if anyone here ever saw this—*Smack-it Ball*. They were rackets that fit like baseball gloves on your hand.

Now, I bought two sets of this because it was unlikely if I called anyone and said, "Do you want to play Smack-it Ball?" that they would have the equipment.

I tried it once and that's probably why none of you ever heard of it—it wasn't a great game. So I brought it into a study.

What we did was to have people play Smack-it Ball. They were taught the rules of the game in one of two ways. They were either told "This is how you play it", and we gave them a set of rules, or they were told, "This is how you might play it, it would seem that it would work this way, and perhaps you might want to do that", and so on.

So the information was presented in an absolute way, or in a conditional way, and they'd practice.

OK. They knew how to play the Smack-it Ball game.

Then what we did, without them realizing it, is we changed the ball so that the ball they were going to play with now was much, much heavier. And you shouldn't hit (anybody who has ever hit the stick to a ball, you're not going to hit or think about it) a ball that's light and a ball that's heavy in the exact same way.

The only people who changed their behavior, who were sensitive to the context (who weren't pumping the brake in the anti-lock car, and so on), were the people who were taught conditionally.

Now we thought to do that actually because of an earlier study we did. People came into the lab; they were introduced to items in one of two ways.

They thought it was a consumer study. And they were told, this is tape, this is a glass of water, this is a speaker who is thirsty, this is a dog's chew-toy, and so on; or, they were told, this could be tape, this could be a glass of water, this could be a speaker who is thirsty, this could be a dog's chew-toy.

They were asked to evaluate these products from least to most expensive. As soon as they started writing, the experimenters said, "Oh, no, they're supposed to be from most to least expensive. What am I going to do? I don't have any more forms."

The question they were asking was, Who would think to use the dog's chew-toy as an eraser? The answer was, only those people introduced to it in a conditional way. For the others, it *was* a dog's chew toy.

Now, let's go back.

I have total recall from second grade, and I remember that in second grade that we would take these cans of frozen orange juice, and you would wash it out and put colored paper around it, and you put pencils in it.

Now, I don't know about you, but for me this was always an orange juice can being used as a pencil holder. Never in its future life would it have anything to do with orange juice. So it would live more days, let's say, as a pencil holder; but still, just as where the fork went, just as horses are herbivorous, it was a can of orange juice.

What I am suggesting is that when you learn about the world in its conditional way, that you don't put it in these categories where it is hard then to retrieve them and move them around. And all of the data seems to suggest that that's so.

The best way to remember something is to memorize it. The only reason we think that the best way to remember something is to memorize it is because things that we try to learn are not interesting to us, and the only way that you are going to learn something that is not interesting to you is to memorize it.

So if I say to you a Whopper has 2,310 calories—does anyone here like Whoppers? Anybody here who likes Whoppers worried about calories? I don't think so.

So how many calories does a Whopper have? I have no idea how many calories it does

have; but when kids go home and they try to learn a song—give me a song—I've been trying to think of a popular song that a teenager would learn. They don't go home and memorize the words. But they know the words. I mean, I still remember the words to a zillion songs that I never memorized. Well, how did I know them?

Well, what we did, and again these are not the most profound studies for this one. But we gave people things to learn, and we told them make it meaningful, or we didn't tell them anything, just learn it. They thought they were going to be tested; or maybe not. When they thought they were going to be tested, even when we said to them make it meaningful, they still memorized. They were afraid not to get their good grades. But when we said to them, make it meaningful, and they didn't think they were going to be tested, they remembered it, they were able to use it in creative ways, they were able to write essays that others evaluated as more intelligent and interesting than the essays written by those who memorized the information.

I'm going to go to the next one because I find that the most interesting at the moment.

We asked hundreds of high school teachers, "So when you tell your students, 'pay attention', 'focus', 'concentrate', what are you telling them?" And all of them say, "Hold the image still as if you are focusing a camera."

Now we go to the students, and we say "OK, when your teacher tells you 'pay attention', 'focus', 'concentrate', what is she telling you?" And all of them say, "Hold the image still as if you are focusing a camera."

So there is no problem with communication. The only problem is the instruction is wrong.

So, those of you who were unwilling to play before, please play now. Would everybody just look at your finger? If you don't want to look at your finger, you can look at my finger.

OK, pay attention to your finger. Now, if you try to hold it still, it's hard visually. It will not stand still. It's very hard to keep it there, to stay the focus on it. It's not fun. Now attend to it mindfully. So I notice a little dirt here; it's a fat little finger, look at it. OK, each of the little distinctions. When I talk about drawing distinctions, they don't have to be monumental; they don't have to be interesting to anybody else, they just have to be novel for you.

OK, so we do a number of studies with elderly people. "Old people have trouble paying attention." When it came to our diagnosis of having attention deficit disorder, clearly they had trouble paying attention. And it was harder to do as well. My goodness, if anyone should have trouble paying attention, they should. And in each case, all we do is tell them, "Notice new things." OK? We have lots of different conditions, and what happens is that when you are told to pay attention, you believe you should hold it still, you can't do it. When you are told to notice new things, paying attention turns out to be very easy.

It was interesting to me because I got into this—a friend of mine who is a highly effective businesswoman goes to see some psychiatrist friend of hers, comes home, and she has this attention deficit problem. And so I then tried to read about attention deficit disorder. So I had it, too. And I told her my rule, if I have it this bad, everybody has it. And I realized that we don't differentiate between the person who is distracted versus the person who is otherwise attracted. If you're not attending to what I want you to attend to, clearly you have an attention problem. But my guess is it's probably another way of looking at it, right? And that speaks to a larger issue that maybe we'll get to in the question and answer time—understanding what other people are seeing and thinking and feeling, and so on.

OK, we had little kids who were walking around this puzzle, versus just sitting and looking at the puzzle, versus sitting and looking at the puzzle and moving their feet (to control for the physiological variable that we get when they walk around), and what happens is that those who are engaged in walking around the puzzle

are going to be seeing it from a different perspective. For them, for these particular students, that was a novel thing. And what happened was they were able to recognize more pieces of the puzzle, and remember them, and remember the locations where the different pieces went.

Delayed gratification is crucial to getting work accomplished. Most people believe this. What this suggests is that there are tasks that are inherently bad, that are inherently hard, and the way to get through them is just to get through them, so that you can go out afterwards and do something that's fun.

Tasks aren't good, bad; tasks are nothing. You want to impose a framework on it to make it good or bad; then behavior that is consistent with that frame will unfold.

So what we did here is we had people, women in this case, who don't like football. They're going to watch football. We had people who don't like rap music, listening to rap music. People who don't like classical music listening to classical music. People who don't like art looking at art. And they did one of four things, very simple, just listen, look, whatever. The other group noticed three novel things, another group noticed six novel things, another group noticed nine novel things.

It doesn't matter again what they are noticing. It may be that the women who are watching football are noticing the smiles or the rear-ends of the football players. Just notice something that you hadn't before noticed, and what happens, we asked them how much they enjoyed the thing that they didn't enjoy before, the more they noticed, the more they enjoyed. That's the nature of involvement.

Oh, I'm glad I said that. Thank you for saying that. I'm glad I said that because we have certain phrases, certain things we tell people, you know, that you want to get involved. People are not involved, not because they don't want to be involved—they don't know how to be involved. This is the way to get involved, just notice more things. We tell people, "Keep your mind active." I used to tell people that because of all the studies I've done of the elderly where we go in and give them an opportunity to keep their minds active, and they live longer.

Nobody thinks their mind is inactive, right? We tell people, "It's important to be in the present", so we think they're not in the present, right, because again when you're not there, you don't know that you're not there. This is a way to be in the present. There are probably a couple of others that fall into that, that maybe I'll take up later.

What we also did was in testing this delayed gratification notion was we gave people cartoons, and we said, "What we want you to do is to evaluate how funny the cartoons are." Now we made this seem like work or it was like play, evaluating cartoons. When it was made to seem like work, their minds wandered, they didn't enjoy doing it, and if they were to do it again, they wanted to be paid twice what they got the first time, and so on.

It's interesting because we have a sense that when we are working or we are learning that what we want to do is get delayed gratification. When we're at play, whatever is the way you play, it is only play because you engage it mindfully. Nobody wants to do a crossword puzzle that they've already done.

Humor relies on mindfulness. I'll give you an example. There is no theory in psychology that I can come up with that will explain my behavior now. I have told this joke a thousand times; rarely does anybody listen. I would laugh at it. I don't know what maintains the behavior, but I only know I saw this person, very unhappy. I said, "Why are you so unhappy?" She said, "Well, my boyfriend gave me a golf club for my birthday." I said, "Why does that make you unhappy?" She said, "Because it didn't have a swimming pool."

OK now, nobody ever laughs. But still I tell it because I thought it was funny when I first heard it.

When you first think of a golf club, probably

in that context you're thinking of a wood, an iron, a golf tool. Later what happens, "ah", is that you realize that a golf club is also their facility, and that there may be tennis and golf, and so on. It's the awareness, "Oh, I saw it this way, but it really can be understood that way as well." That's humorous. That's mindful.

Whenever you're at play, you're being mindful. That's why play is fun. But there is no reason that that same attitude, that same process, shouldn't be brought into our studying and our work.

Forgetting is a problem, but it's interesting that what we find with this mindful attending, mindful learning, noticing novel things, is that you like the thing that you're drawing distinctions about. You want to pay attention to it, and you remember it.

When you learn something mindlessly, you probably don't want to remember it, much of the time, because if you remembered it, what you would be remembering is essentially bringing the past into the present.

Let me say it a little differently. Sort of imagine that you remembered everything from yesterday; it would be hard to have it today. That's the first thing. The second thing is, if I remember—What is your name, Louise? If I remember everything about my relationship with Louise five years ago, it's going to be very hard now five years later when I need Louise to recognize all the ways that we're different.

What I am saying is that forgetting allows one to be situated in the present. Forgetting is not always a bad thing. In fact, it's probably more often a good thing than a bad thing. But it's very much related to mindless learning.

So we did this study where we looked at people. There're cultures like the deaf, the Chinese on mainland China, who don't have the view that as you get older, your memory gets worse.

So what we did was we paired old and young. People who were from mainland China, people who were deaf, and the non-deaf, non-Chinese in this culture, and we gave them memory tests. So we are saying that those two groups—the deaf and the mainland Chinese—don't have the view, the mind-set learned when you're younger, that you're going to forget. The reason that I like the study is because the deaf old outperformed their hearing counterparts. Not having the mind-set that you're going to lose your memory seems to be related to how good your memory is when you get older. We'll talk more about that and I'll confuse everybody later. If I confused everybody, that's OK. If I only confused some of you, then we have something to deal with.

Intelligence is knowing what's out there. Intelligence is not the same thing as mindfulness. At Harvard there are a lot of very intelligent people . . . I'm not going to complete that. But I'll tell you the ideal. That what mindfulness is is a process—a way of taking in and using information that sets you up to be able to reinterpret that information virtually endlessly, rather than be trapped by it.

Our tests of intelligence are tests of somehow being able to point to as many things out there that somebody else has helped fill.

Now I think I'm going to go to the next one. All of our teaching, most of our teaching at least, is geared toward teaching the kids the right answer. And so you ask a question, and the child or adult gives the answer, and if that answer is not the answer that you like, that answer is wrong. You respond to the person accordingly. You try to be nice, but, whatever.

What I'm suggesting here is that the answer that that person gave was a right answer, and that what we need to do is find a context that's in that person's mind, that makes that answer sensible.

Sometimes people now say to me, yeah, but what about mathematics? Because they are oblivious to the fact that we have many different number systems, and some of the things that we think are true are true only within certain number systems. I don't have to get that involved. I

say, "Isn't one and one always two? And wouldn't any other answer be wrong?" And I say, "Well gee, I don't know, if you take one wad of chewing gum, and you add it to one wad of chewing gum, I think you end up with one wad of chewing gum."

So is one and one two? Sometimes; it depends. And what we need to teach people, and remember ourselves, is that all of the information we take in *depends*. When we remember that it depends on the context—that things are changing—we don't end up with the arrogance that would lead all of us to read "I love Paris in the the springtime", as "I love Paris in the springtime", right? You read it that way because you *knew*.

And what I'm saying again is that when you have a healthy respect for uncertainty or perspective, which you get by actively noticing new things, then you end up being able to avert the danger that has not yet arisen. You end up being in the position to take advantage of all sorts of opportunities that otherwise are not even apparent to you, to us, that we're missing.

Let me just conclude in a moment and then we'll see how much of this you agree with or disagree with, and where to take it next.

It's very important that one give a well-rounded view. It's very hard for me because I believe everything that I've said.

So now, are there any questions?

Comment. I must compliment Dr. Langer on her fine AKML lecture, which I evaluate as very interesting and informative.

When the symbol 1 represents the *natural number* 1 (and +, plus), then 1 + 1 always equals the number 2 in mathematics. However, the symbol 1 can represent other mathematical entities. In integer modulo 2, 1 and 0 have properties that correspond to "odd" and "even", and 1 + 1 = 0 means that an odd number plus an odd number equals an even. In a binary number system, 1 + 1 = 10; but in that case, "10" stands for two, not ten, and means that there is one unit in the two's place, and zero units in the one's place. In Boolean algebra, 1 + 1 = 1, where + means "union", not "plus", conforming nicely to the chewing-gum illustration.

Dr. Langer 'is' right: We sometimes run into problems when we confuse the rules of arithmetic with the way that entities behave in the 'real' world. Korzybski used the example of two gallons of alcohol mixed with two gallons of water—the resulting mixture amounts to slightly less than four gallons, illustrating that outside of mathematics (in the 'real' world), 2 + 2 is not necessarily 4.

From my limited perspective, the premises of educational theory in the United States appear unduly biased by individualism and a blindness to the value and importance of knowledge for its own sake. As mentioned by Dr. Sizer, the goal seems to be "free, inventive, and principled minds". As this is translated in many classrooms, teaching 'self-esteem' and the like is elevated above teaching world geography, for example; yet, in practice, few things appear more corrosive to freedom, invention, and principle than generalized ignorance.

If we (informed by general semantics) take seriously the notion of humans as the time-binding class of life, then preserving and passing on the precious knowledge and information of the past and present to current and future generations becomes the main goal of education. Teaching toward various desirable qualities of the individual (to the extent that such qualities can be *taught* by teachers of greatly varying abilities) amounts to a subset of the main educational quest. As a subset, it is not left out; it is just not the end-all of education.

This is only one of many examples, and perhaps exaggerated, but when I see a report on CNN that 39 percent of high school seniors cannot name the countries that border the United States, I wonder what is happening in America (and what may happen) to the precious knowledge of the generations. – ed.