Good afternoon. And now for something different. It is very nice to have been invited to this symposium by Diane, I think what they’re doing is great. What they’re trying to achieve is great as well, trying to translate science into practice. I’ve been trying to do that for the past five or six years. My story began after I left the Navy, I was asked to write two things that led me to what I am going to talk to you about today. One was writing this article, which is the end of a chapter on training in 2001, and the story there is, there was a review for the previous ten years on the science of learning, the science of training if you will. I was amazed at the progress, and if you have read that article, we called the chapter the Science of Training: A Decade of Progress. We found hundreds of critical studies conducted in organizations that had not been done in the previous ten years. I was amazed by the amount of empirical work, the number of studies done in context, as opposed to in laboratories at universities with undergraduates doing contrived learning tests. When I was in the navy, the industry world opened to me, beyond the military. And I began to give talks here and there in corporate America in a lot of industries, the financial, oil, you name it. I found that in those organizations, a majority of the Fortune-500 companies, have no clue about our science, our findings, or our lessons learned and how to write about it. So, we need to translate. There is something wrong here. We have this body of knowledge out there, and there is desperate need in organizations to do continuous learning, all the work that you read now, and they just aren’t informed. So I decided, in the last five years, to translate, and to write principles (that are research-based) of learning and training, to help organizations.

So I want to tell you a little story of how we got those principles, and hopefully this is very practical. I have a bunch of principles and a bunch of tips, and like Valerie said, once you translate all of this science, you know it. There are a lot of things behind them, and I hope that while they’re simple, they’re powerful. And the magic of these principles is really how you implement them and how you apply them.

There are three main reasons why you should care about learning and training in organizations, I’m going to summarize the science very quickly. I’ll give you my email and I can give you the sources from where I am getting these analyses and so forth. These are basically the principles and the tips.

So, why do we care? Those of us who have been in the training world of organizations, know that training is a big business. Organizations spend roughly 250 billion a year in learning training and training technologies. I was in the military for a while. The military budget for training is probably similar to that or bigger. So this is a huge investment that organizations make every year in training. In the industry, there has been this belief in the past five or six years that learning puts you at an advantage…that the more talent you have, the more skills you have, and the wider variety of skills your workforce has, the better off you’ll be. And organizations invest a lot in that. In the last
few years, my interaction with corporate American has show that there’s a lot of interest in learning. There are now chief learning officers and all kinds of things. So, there’s the urge to learn, and learn fast, make it accessible to employees, at home and at their desk, so that they don’t have to travel. So now you have things like continuous learning. These days, and some of you may know this, my view is that the industry is really moving away from the classroom, to on-the-job learning and on-the-job training. We’ll touch on that, but there’s this big movement.

The other reason why I think we should care, is that we have some evidence that training works. And actually, there’s some analysis that has shown the effect size is in the .62 range. So our review is that training works, and this has been tested in a number of domains; aviation, oil, industry, and military. But there is also evidence that training sometimes doesn’t work. It’s when there’s poor design, it doesn’t use learning principles, or no feedback is provided, those kinds of things. Those of you who are in organizational psychology should know that there is a report every year that’s called “The State of The Industry”, and they survey Fortune-500 companies and they create a base market. And basically what it shows is that the organizations that are most productive, invest more in training. And so, the benchmarking organizations for training invest $1800 per employee a year, at least, while the average company spends about $900. The benchmark companies spend about 3% of their gross revenues in learning, while the non-productive organizations spend less than 1%. So there are some areas in which to invest.

And finally, there is a science. And like I said at the beginning, that science is not used, is not leveraged, is not exploited… it’s misused and abused, and in my experience, there are many misconceptions within organizations about how training works. I wrote a chapter many years ago on the 22 myths that many organizations have in a simplistic view of training. Unskilled worker….they go to training, voila, skilled worker. They want you to think that magic happens in there. Organizations just want to send some one to training…go take this course for three da ys somewhere, read this manual, and by the time you get back we hope you are a different person.

So, the important thing, how can an organization get back to valuing learning and training efforts? And my intention here was to say, why don’t we translate this body of knowledge? So what do we know? So again, the science is alive and well, there are more empirical studies with real experts doing real things, and reporting it in literature. There’s a lot more critical work than there was 20 years ago, more than there was 10 years ago, and I think there’s a lot of significant findings. I want to show you a little of that. Those findings can be translated into very powerful evidence-based principles that organizations can use and apply. There’s a number of reviews, one in 1992 and another follow-up in 2001, the one that we follow, and I believe there will be another in 2009. (inaudible) There are lots of books that document the science, and I’m just giving examples that there is a large body of information out there. There are summaries in books, and a number of myth analyses that are beginning to appear. (inaudible) I want to give you an idea of what matters. So, what matters? Here are a bunch of things that I think matter. If there is one critical finding that we have now, it’s in motivation to learn. Motivation to learn is not only motivation to attend the course or training, motivation to
learn in the course and then apply it, and now to learn it on the job. So, I think if you see
the corporate analysis from 2001, you’ll see that motivation has a powerful effect size.
Others have done research on inability to perform, and this is a deadly sin in
organizations that want to get the effects of training. Well, you get training, you back to
your job, and your boss doesn’t give you the opportunity to practice and try the new skills
you have. The effect that your team leader has after you get back from training has a
huge effect. In fact, studies have shown that the first 30 seconds of what he/she tells you
when you get back, matters in terms of whether you will apply the skills that you’ve
learned, if the organizational climate is pro-learning, the signals that they send about
learning and so forth. One of the biggest problems is that there is disconnect between
what the organization expects and what the employee thinks they want. You can have the
best training in the world, the best learning principles applied, but if your organization is
not aligned with that, or if you don’t have the right incentives, rewards, policies, and the
right procedures, you won’t get the effects that you want from the learning. Of course,
Valerie just showed us the value of feedback. I’m amazed that after 100 years of
researching feedback, and we know how powerful it is. Organizations are horrible at
giving feedback to employees. Actually, we all are. That basically means that if you
expose people to a task that they will learn by themselves, some research shows that
sometimes people learn this way, but the experience has to be guided somewhat.
Simulation works, and I don’t want to spend a lot of time on that, coaching, and the list
could go on, I could put 30 more things that matter on here.

Four minutes. Okay. So here is the evidence, and you’re saying ‘how can I summarize
this to think about it?’ I think that world-class organizations, in order to teach, they need
to worry about their employees, what they bring to the table and their expectations of
motivation. Their leaders need to be trained and managers need to give support. The
working environment needs to be supportive of learning. So let me go over the principles
real quick. I have 12 of these, so I’ll use about 22 seconds for each of them.

All these principles here...you can see the tips, they’re one-liners, and when I use these
in industry, they think these are great, because they think they’re on the front of this kind
of thing. And these are a translation of science. So the first principle, I would say, is to
start thinking about learning outcomes, what is it you want out of your employees? You
need to prepare the organization for training. One of the things we find in the literature is
that sometimes good training, good intentions, all those good things fail because the
organization is not ready to receive the training. They don’t have a procedure. Training
is not one box, training is a big box, and let me show you one graph of these principles.
It’s a systems approach. There are things you need to worry about before, things you
need to do during, and things you need to do after. In fact, and I know you cannot read
this clearly, but this is a model developed by me a few years ago, and so you have things
before; the learner characteristics, the motivation to learn, and the support, in the middle;
the criteria and the learning design, and then afterwards; the transfer environment, which
we tend to ignore. So, you have to look at that. And when I send this to organizations,
they say ‘wow, I didn’t know I had to think about all these things.’ This is one of those
mushy things that organizations don’t like to hear, but the data is so compelling. It
depends on instructional principles, diagnosis feedback...one of the things people that
develop training do is performance assessment, performance measures. Without measurement, there is no opportunity to learn. So, you have to set up metrics. You set up the learning environment and set the time of learning against your expectations.

Now, I could talk for hours here. I’m a big fan of simulation, it should be used whenever possible, and there are all kinds of simulation, but simulation works. It’s a very powerful tool. And I think the industry is moving in that direction. These days, you’ll see a lot more level three behavior reporting than there used to be in reports.

So, the science of learning and training can help organizations. There are a number of principles we have translated, and I think if there was one message about training, it would be to train systematically by those principles and monitor the outcome. And I think we’ll get there. (inaudible)...There’s a lot of science in training, so I think what this group is doing is great, not only to educate ourselves but the workplace as well. One thing for those in instructional psychology to do is to translate what we know, and...I don’t want any of you to think we know it all. There’s a lot of research that needs to be done in the learning area, and it’s something that people can use. Thank you.