

Lecture Text

Professor Amy C. Edmondson

Can Complex Organizations Learn?

(edited for clarity)

Introduction

My name is Amy Edmondson, and I'm actually in the TOM [Technology and Operations Management] faculty, although my degree is in organizational behavior. So I am—without even moving very far—I am already crossing bridges right and left.

My research for the past, more than ten years, fifteen years or more has been on this phenomenon of organizational learning, and I'll say more about what that is and why we should care about it in just a second.

A lot of that work and really most, if not all, of what I'll talk about today has been in the healthcare setting, and specifically in the hospital setting. And this is a particularly important setting to talk about learning, for reasons I will describe as we go. It's also a setting that I think has analogs to other service contexts, but in Technicolor.

So service contexts can be challenging places to manage because you never really know when a customer is going to show up and exactly what they are going to need and what their capabilities are going to be. So in healthcare that is true and then magnified a little.

So people who manage hospitals and manage the many professionals that work in hospitals face a challenging job. Not only is it a challenging job right off the bat, but it's a context in which, if you're not learning and learning constantly and quickly and—for reasons I'll explain later—learning collectively or learning together, you're falling further and further behind. So with the title, I changed the title here from “Organizational Learning in Healthcare” to “Can Complex Organizations Learn?” because I want to deliberately make connections to other settings as well.

And I want to start just by pointing out that we as a society entrust some of our more vulnerable members to complex institutions. We have children in public schools whose future and sort of livelihoods are at stake when we don't educate them well. And we have patients, of course, in hospitals, whose very life is often at stake and vulnerable to the workings of what I'll call “complex institutions” or “complex organizations.”

Complex organizations are ones with many moving parts: many people, many professionals; roles, groups, departments that need to be working together, so are interdependent to some extent or another. And how you coordinate all of that activity is not always clear. So I say that there are, at least in healthcare, frequent opportunities for learning—I'll describe what some of those are—and yet at the same time, pervasive barriers: things that make it very challenging indeed.

I wish my research had uncovered a magic solution or a magic bullet that helped us get through all of this. But, unfortunately, I haven't as of yet.

So what I have instead is a mindset and a set of managerial practices that seem to increase the likelihood of achieving successful outcomes in the form of learning.

Overview

So let me give you a little overview of where we're headed. So I'll talk about what is organizational learning and then a little bit about why is this particularly important in healthcare.

全国Mini-MBA职业经理双证班



精品课程 权威双证 全国招生 请速充电

你可能准备跳槽或者求职, 却为缺少行业经验和专业证书而被用人单位百般挑惕!

你可能目前衣食无忧, 但随着年龄的增长和社会竞争压力的增大, 因为得不到专业的全新培训而失去竞争的机会和面临被淘汰的危机。

美华教育携手中国经济管理大学面向全国举办迷你 MBA 职业经理双证书班, 毕业颁发双证书。

招生专业及其颁发证书

认证项目	颁发双证	学费
全国《职业经理》MBA 高等教育双证书班	高级职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《人力资源总监》MBA 双证书班	高级人力资源总监职业经理资格证书+2 年制 MBA 高等教育研修证书	1280 元
全国《生产经理》MBA 高等教育双证班	高级生产管理职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《品质经理》MBA 高等教育双证班	高级品质管理职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《营销经理》MBA 高等教育双证班	高级营销经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《物流经理》MBA 高等教育双证班	高级物流管理职业经理资格证书+2 年制 MBA 高等教育结业证书	1280 元
全国《项目经理》MBA 高等教育双证班	高级项目管理职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《市场总监》MBA 高等教育双证书班	高级市场总监职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《酒店经理》MBA 高等教育双证班	高级酒店管理职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《企业培训师》MBA 高等教育双证班	企业培训师高级资格认证毕业证书+2 年制 MBA 高等教育研修证书	1280 元
全国《财务总监》MBA 高等教育双证班	高级财务总监职业经理资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《营销策划师》MBA 双证书班	高级营销策划师高级资格认证证书+2 年制 MBA 高等教育研修证书	1280 元
全国《企业总经理》MBA 高等教育双证班	全国企业总经理高级资格证书+2 年制 MBA 高等教育研修结业证书	1280 元
全国《行政总监》MBA 高等教育双证班	高级行政总监职业经理资格证书+2 年制 MBA 高等教育结业证书	1280 元
全国《采购经理》MBA 高等教育双证班	高级采购管理职业经理资格证书+2 年制 MBA 高等教育结业证书	1280 元
全国《IE 工业工程管理》MBA 双证班	高级 IE 工业工程师职业资格证书+2 年制 MBA 高等教育结业证书	1280 元
全国《企业管理咨询师》MBA 双证班	高级企业管理咨询师资格证书+2 年制 MBA 高等教育结业证书	1280 元



【授课方式】 全国招生、函授学习、权威双证

我校采用国际通用3结合的先进教育方式授课：远程函授+视频光盘+网络学院在线辅导（集中面授）



【颁发证书】 学员毕业后可以获取权威双证书与全套学员学籍档案

- 1、毕业后可以获取相应专业钢印《高级职业经理资格证书》；
- 2、毕业后可以获取2年制的《MBA研究生课程高等教育研修结业证书》；



【证书说明】

- 1、证书加盖中国经济管理大学钢印和公章（学校官方网站电子注册查询、随证书带整套学籍档案）；
- 2、毕业获取的证书与面授学员完全一致，无“函授”字样，与面授学员享有同等待遇，证书是学员求职、提干、晋级的有效证明。



【学习期限】 3个月（允许有工作经验学员提前毕业，毕业获取证书后学校仍持续辅导2年）



【收费标准】 全部费用1280元（含教材光盘、认证辅导、注册证书、学籍注册等全部费用）

函授学习为你节省了大量的宝贵的学习时间以及昂贵的MBA导师的面授费用，是经理人首选的学习方式。



【招生对象】

- 1、对管理知识感兴趣，具有简单电脑操作能力（有2年以上相应工作经验者可以申请提前毕业）。
- 2、年龄在20—55岁之间的各界管理知识需求者均可报名学习。



【教程特点】

- 1、完全实战教材，注重企业实战管理方法与中国管理背景完美融合，关注学员实际执行能力的培养；
- 2、对学员采用1对1顾问式教学指导，确保学员顺利完成学业、胸有成竹的走向领导岗位；
- 3、互动学习：专家、顾问24小时接受在线教学辅导+每年度集中面授辅导



【考试说明】

1. 卷面考核：毕业试卷是一套完整的情景模拟试卷（与工作相关联的基础问卷）
2. 论文考核：毕业需要提交2000字的论文（学员不需要参加毕业论文答辩但论文中必修体现出5点独特的企业管理心得）
3. 综合心理测评等问卷。



【颁证单位】

中国经济管理大学经中华人民共和国香港特别行政区批准注册成立。目前中国经济管理大学课程涉及国际学位教育、国际职业教育等。学院教学方式灵活多样，注重人才的实际技能的培养，向学员传授先进的管理思想和实际工作技能，学院会永远遵循“科技兴国、严谨办学”的原则不断的向社会提供优秀的管理人才。



【承办单位】

美华管理人才学校是中国最早由教委批准成立的“工商管理MBA实战教育机构”之一，由资深MBA教育培训专家、教育协会常务理事徐传有教授担任学校理事长。迄今为止，已为社会培养各类“能力型”管理人才近10万余人，并为多家企业提供了整合策划和企业内训，连续13年被教委评选为《优秀成人教育学校》《甲级先进办学单位》。办学多年来，美华人独特的教学方法，先进的教学理念赢得了社会各界的高度赞誉和认可。



【咨询电话】13684609885 0451--88342620

【咨询教师】王海涛 郑毅

【学校网站】<http://www.mh.jy.net>

【咨询邮箱】xchy007@163.com



【报名须知】

- 1、报名登记表格下载后详细填写并发送邮件至 xchy007@163.com (入学时不需要提交相片，毕业提交试卷同时邮寄4张2寸相片和一张身份证复印件即可)
- 2、交费后请及时电话通知招生办确认，以便于收费当日学校为你办理教材邮寄等入学手续。



【证书样本】(全国招生 函授学习 权威双证 请速充电)

(高级职业经理资格证书样本)

(两年制研究生课程高等教育结业证书样本)



【学费缴纳方式】(请携带本人身份证到银行办理交费手续，部分银行需要查验办理者身份证)

方式一	学校地址	<p>邮寄地址：哈尔滨市道外区南马路 120 号职工大学 109 室</p> <p>邮政编码：150020 收件人：王海涛</p>
方式二	学校帐号 (企业账户)	<p>学校帐号：184080723702015 账号户名：哈尔滨市道外区美华管理人才学校</p> <p>开户银行：哈尔滨银行中大支行 支付系统行号：313261018018</p>
方式三	交通银行 (太平洋卡)	<p>帐号：40551220360141505 户名：王海涛</p> <p>开户行：交通银行哈尔滨分行信用卡中心</p>
方式四	邮政储蓄 (存折)	<p>帐号：602610301201201234 户名：王海涛</p> <p>开户行：哈尔滨道外储蓄中心</p>
方式五	中国工商银行 (存折)	<p>帐号：3500016701101298023 户名：王海涛</p> <p>开户行：哈尔滨市道外区靖宇支行</p>
方式六	建设银行帐户 (存折)	<p>中国人民建设银行帐户(存折)： 1141449980130106399</p> <p>用户名：王海涛</p>
方式七	农业银行帐户 (卡号)	<p>农业银行帐户(卡号)： 6228480170232416918 用户名：王海涛</p> <p>农行卡开户银行：中国农业银行黑龙江分行营业部道外支行景阳支行</p>
方式八	招商银行 (卡号)	<p>招商银行帐户(卡号)： 6225884517313071 用户名：王海涛</p> <p>招商银行卡开户银行：招商银行哈尔滨分行马迭尔支行</p>

可以选择任意一种方式缴纳学费，收到学费当天，学校就会用邮政特快的方式为你邮寄教材、考试问卷以及收费票据。

And then we'll go to sort of the bad-news part, which is, why is this so rare or so difficult on its own? The good news there is that it leaves a very important role for management for leadership. So this is a problem in healthcare that is not going to be solved by ever smarter doctors, but it's actually going to require managerial skills, which is why—as an aside, by the way—we've seen the number of MDs in the MBA program having grown at about a factor of ten since many of you were here. So we think that's good news.

So why is it rare? And then, what are some of the ways we can overcome the barriers?

And end with what, in a very particular sense, is the job of the leader? And I'll be talking about the leader as not just the CEO or the chief executive of a hospital, but also people very much at the department or unit level who are leading these smaller interdependent units.

Organizational Learning

So what is organizational learning? The definition that I'll put up here: It's a process of improving organizational action. And this is important: It's a process that involves collective effort to develop our knowledge.

So it doesn't happen just simply by practice. That may lead to improvement but that's not organizational learning. Organizational learning is mediated by cognition. We're going to think about what's so now, and we are going to think together about ways to make it better. Then we're going to try them out and see how we do. And it probably won't be quite right, so we'll do it again and we iterate toward improvement.

Some examples to make it more concrete: I think total quality management in the manufacturing setting would be a good example of an organization—a plant trying to learn. And, in fact, when done well, learning, and learning about where the problems are and how to improve them.

In the boardroom we might see a senior management team working to assess, what is our strategy? What is the state of the world? Is there a fit? Should we be making changes? And that would also be a way that the organization is seeking to learn.

We also could talk about something as far away from business as raising student achievement in a particular school district—clearly a complex organization and clearly a project that involves collective learning. But we won't go into that much today.

A little aside on healthcare—just a couple of data points. At the moment, at the current time, there are 30,000 new peer-reviewed articles every month in Medline, the medical database of journal articles. So obviously, no one person reads 30,000 articles in a month. Hence, we have the counterpart here of ever greater specialization so that yesterday's specialists are now subspecialists. And soon we'll see more and more sub-subspecialists.

But the point is that the rate of change of knowledge, of technical knowledge, is nothing short of staggering. I could go on about how many new devices the FDA reviews, how many new drugs. All of it is basically to say there is knowledge. There is more knowledge than an individual practitioner can easily keep up with, and hence there is a need for these many specialized caregivers to coordinate and collaborate with each other to take care of patients.

So these two things come together to suggest that the organizations, whether they be a small team of patients who care for diabetics, or who do cardiac surgeries, as I'll talk about later, or an entire hospital as an organization that needs to keep learning and needs to keep learning together.

This is not brand-new but it's clearly intensified in the last decade or so. And this intensification comes with a heightened awareness of the problem of quality or the problem of medical error that has hit the headlines in the last half decade or so.

Opportunities for Learning

So hospitals need to learn. And they face, as I said, many opportunities for doing so. Let me give you three.

One: Errors. There clearly are—we don't like to think about it, but there are a lot of errors that happen in the day-to-day operations of most major hospitals. So I'll define an error here as the execution of a task that's unnecessary or incorrectly carried out; something that in theory could be avoided had the proper information and skill been present at the right time. And, generally, the error makers are unaware of making a mistake at the time that it occurs or they wouldn't do it.

The second exciting opportunity for learning are problems. Even more mundane than errors, problems are interruptions in our ability to execute some prescribed task because something is either in the way that shouldn't be or something is missing that should be there to allow us to carry out this task. Unlike errors, problems are usually—the people who are trying to execute the task are quite aware of the problems. So that makes them an interesting thing to study, and I'll describe a study of that.

And finally, from the outside or often from the inside, new technologies are developed or new techniques or practices. In medicine this happens all the time. There's a new sort of state-of-the-art practice for taking care of diabetes, for example, and we want our hospital to learn that quickly so that we are up to the state-of-the-art. So here are the opportunities.

And now we shift gears and take a look at some of the barriers. And from here I'll be drawing from four field studies that I've done while on the faculty here.

I'm going to just put up some data here. Now what these data are, are error rates expressed as a function of error per thousand patient days in eight hospital units in two cleverly disguised Boston teaching hospitals. So eight different patient care units, like wards, and these are just the numbers. These numbers were collected by a team of medical investigators. I was a part of this team. I'm not a medical investigator but I was a social psychologist working on this team. The reason I was invited in is that the principal investigators, who were leading thinkers in the area of medical error, wanted to have a social psychologist in there to assess whether the teamwork and the levels of teamwork in these units would affect the error rate. So that's why I was brought on board.

Now, after six months of data collection, these were the sort of definitive numbers that were given to me so I could then plug those into my models and see what was happening. What do you notice about those numbers? What are some of the things that . . .

___: Enormous range.

PROFESSOR EDMONDSON: Enormous range, you bet, absolutely. I think the first and most important observation there is that we have a range from almost twenty-four in Memorial 1 to just barely over two in Memorial 3. So the question at the top of this slide is actually meant to be—it's a trick question. My students are tricked every time. They uniformly will say, well, where do I want to be admitted? I want to be admitted to Memorial 3. Why? Well, they don't make mistakes there.

So why might that not be the right answer? Austin?

___: The nature of the unit and how advanced and how recent there have been new introductions of drugs and . . .

PROFESSOR EDMONDSON: You'd want to know more, for sure. These are two Harvard teaching hospitals. Again, I won't say which ones. But we can assume for the moment that they both are really at the state-of-the-art care. Of course you also need to know, if I'm an oncology patient, I'm going to be in a different unit than if I'm a post-op CABG—coronary artery bypass

patient. But that said, if we knew nothing else, why else might that not be the right answer. Steve?

__: All errors aren't created equal. So some errors might lead to death and others might really not be that important.

PROFESSOR EDMONDSON: You bet. These are all consequential. But again they are not going to be equally consequential. Anything else? Dagmar?

__: Maybe they don't recognize that they're making these errors.

PROFESSOR EDMONDSON: Very good point. So maybe, although we would expect the trained medical investigators to be able to figure it out from the data, in a sense. And what they did was go unit to unit and talk to people and look at the charts now and then, and so on and so forth.

So you're heading in the right direction. And I'll tell you how I suspected this. What I found—I guess I should let you know this. So I run the numbers. Remember, my little part here was just to say, do better teams make fewer mistakes? And they *should* make fewer mistakes because they're going to have better coordination, better ability to hand off. And it turns out a lot of medical errors are made because of improper handoffs. So they're often more a function of the coordination and collaboration between people than simply individuals being incompetent.

So I ran the numbers and to my shock—well, initially to my shock—I was pleased to see that I had a statistically significant relationship here between measures of teamwork that I got from a well tested survey and the error rates. And then I noticed something wrong here, which was the direction of the correlation was exactly backwards. So my survey was telling me that Memorial 1 and its friends up there were the highest teamwork units. And the ones toward the bottom here were the worst team players. So that was a little bit discouraging, to say the least.

There was this moment of, how do I tell my advisor that his theory is just wrong? Because, really, at that point it was his theory. And so I had to do some thinking, and it was easier to do some thinking than to face my advisor. So I did. And then I was suddenly struck by what I think really was a blinding flash of the obvious, which was, well, wait a minute, maybe these teams up here don't *make* more mistakes; maybe they just *talk* about them more, *report* them more, are more *comfortable* discussing and revealing them to these nice nurses who are coming by with the clipboard every other day. And so, rather delighted with myself, I went to the principal investigators, these two prominent physicians who, by the way, had gotten a fair amount of money from the NIH [National Institutes of Health] to identify the definitive error rate.

So when I came and said, "I think we may not have the definitive error rate. In fact, it may be systematically lower or more off in some units than others," they were not at all happy to see me. And I had to jump through quite a few analytic hoops, which actually was a good exercise to have to do—both with the data, and then ultimately through another means. Which was to say, if I was right, and in fact there was variance in the reporting climate in these units, a number of other things should be true in terms of the data. But beyond that, somebody else ought to be able to detect that.

So I hired a young anthropologist. He was not given any knowledge about the error data, or about the survey data, or even about what I was interested in. His name is Andy Molinsky. He is now a professor at Brandeis. I said, "Andy, go live in these units for a while and just report back. What are they like as little social systems?" And to make a long story short, he came back and he said various times, "They're very different." I said, "Okay, great. How are they different?" "Well, in some, the nurse manager is in a business suit and behind closed doors of her office. In others, she's in scrubs. And she is the local leader, by the way. She's in scrubs, sleeves rolled up, on the floor helping people. He said, "Is that the kind of thing you're interested in?" I said, "Yeah, more of that."

And ultimately he had lots of data, lots of quotes for how people saw the workplace, and so on and so forth. And I said, “Can you rank order these hospitals in terms of”—his word, not mine—“authoritarian-ness and openness?” He said, “Oh, yeah, I can do that.”

So it turns out that this rank order here from Memorial 1 to Memorial 3 is—these are sequenced by Andy Molinsky’s rating, not by the numbers. And if you were looking carefully, and you are all very quantitatively skilled—I know from having graduated from here—you would have noticed that it looks like a sequential list. And then Amy gets a little mixed up in the middle here, right? Eleven, eight, ten. Wait a minute, what’s going on? No. That’s Andy’s rank ordering of the units, which happens to bear an extraordinarily high correlation with the actual error data.

So let me give you a little bit of a feel for some of the data he collected. So these are quotes from nurses in units near the bottom of that chart: “She treats you”—meaning the manager—“as guilty if you make a mistake . . . I was called into her office and made to feel like a two-year old.” It’s very evocative language. “You get put on trial . . .” “People get blamed . . . You don’t want to have made them.” And maybe this doesn’t surprise us much. After all, life and death is at stake here. We don’t want people being cavalier about these things. So we go across the hall here or up to the top of the chart and we see a very different type of picture. And I’m just selecting a few here.

Over here, Andy found people just telling him things like—the nurse manager in fact would say things like, “Nurses are too hard on themselves . . . They’re harder on themselves than I would ever be.” I have a theory of management here, which is when someone is going to be that tough on themselves, the last thing I would want to do is come down hard on them. It would be counterproductive, this person is expressing.

And similarly, one of the most interesting quotes in Andy’s data: “Mistakes in this unit are serious . . .” This is an oncology unit. “Mistakes in this unit are serious because of the toxicity of the drugs . . .” Very serious toxic drugs. And, “so you are never afraid to tell someone.” So there is a theory expressed there, a tacit theory: If toxic, then easy to speak up. Say what? That’s not how their colleagues across town and across the hall saw the world. But what Andy began to paint for me was a picture in which this kind of mindset was taken for granted. If it’s toxic you’d speak up quickly so we can learn, so we can do something about it.

So I became fascinated by the idea of, how could the people at the bottom here learn? And I became quite convinced, as ultimately did the principal investigators, that there are mistakes happening there, but mistakes that were going unreported and hence unlearned from.

At the end of this big study, a lot of interesting and exciting changes were made at these hospitals when they begin to collect the data rather than there always being an individual incident. You begin to realize that some pumps are systematically hard to read. We get rid of them. We get new ones with bigger dials, bigger numbers. So the organization learns. But the point here—and this is a longwinded way of expressing it—the point here is that the organization can’t learn unless the people who work there are helping. They are the ones who are close to the data, who are close to the task, who need to speak up and offer what they can see.

But as I already told you, this was not what I set out to study. I had set out to study, did better teams make fewer mistakes? And at the end of this study, all I could say is we don’t really know. We know that better teams are reporting more mistakes, with the possible potential for learning more from them, but we’d have to test that more systematically.

So I then kind of switched gears and thought, if this is true and this was an accidental finding, so maybe it was just a one-off situation. If it’s more than that, it should be something I can test more systematically.

So in my dissertation research, I set out to really pin this thing down, and I called it “differences in psychological safety.” And let me just say a little more about that, because most of us don’t think about this very much. But on a day-to-day basis we go to work, we go to the workplace, and we face these very minor little interpersonal risks. We all face the small risk of appearing to our peers and managers ignorant or incompetent or negative or disruptive or something like that. And let’s face it, none of us really wants to be seen in that light.

So it turns out there is a very easy solution that most of us have mastered, which is the following. It’s just a piece of cake: Problem solved.

What’s wrong with our solution?

__: Not much learning goes on.

PROFESSOR EDMONDSON: Not much learning, exactly. I’m set, I’m safe. But our group doesn’t learn, or at least I’m not helping it learn. So the alternative is to create a climate—and this, I’m going to argue later on and now, is really the job of managers and leaders—in which interpersonal risk is minimized. I’m not talking about business risks, or all sorts of other technological risks that we might want to engage in. But the last thing I want to do is have Mary afraid of Trevor and Trevor afraid of Mary, because they are just not going to do the great things they would be capable of doing. So I sort of was building on this insight.

Now often I’ll ask groups, if I have gotten this far, how would you create psychological safety?

And there is usually a sort of deafening silence. So then I say, well, how would you destroy it? And people have lots of ideas and those are captured here.

Some time-honored solutions: Make sure the boss criticizes people’s ideas right, left, and center; spread rumors. These are good. Even if they’re not true, you can still do it about people being punished for well-intentioned error. Only accept input from experts. Put people down for being different. And of course, as far back as Shakespeare, we’ve known that shooting messengers is a good way to do this and limit what you hear in the future.

So how do we create it? Well, some more recent research that I’ve done, actually again in healthcare, shows that one thing that makes a big difference is inclusive leadership, by which we mean accessible, is around and about, not behind closed doors somewhere. But of course, it’s easy to say I’ve got an open door. Lots of managers say, “I have an open-door policy.” You can stand by that door all day long and nobody ever goes in and out. So you have to go down a level and say, “Actively inviting input. I need to hear from you. I need to hear from you, Catherine, because I don’t have the expertise you have. I have my own expertise and it’s considerable, but I need to hear from you.”

And then, finally, the toughest one for many people in positions of authority is to model fallibility. I may be missing something. It’s not that hard to imagine I might be missing something, but it can be hard to say. These behaviors go a long way.

Let me give you an example of this and some data for this.

So these data come from a very recent study with a couple of graduate students in the ICU [Intensive Care Unit] environment in which we have a large survey data set from about a thousand people in twenty-three hospitals.

And we predicted and sure enough we found mean differences, just significant differences in people’s self-reported number of six or seven survey items that get at this—the degree to which they feel psychologically safe at work. That means able to express themselves, ask for help when

they need it, ask questions when they don't know how to do something, discuss an error that may have gone on. And it turns out, not surprisingly, that the thing is perfectly correlated with status.

So these are role-based status categories: physicians, nurses, and respiratory therapists who play a very important role in the ICU. So they come to us off the bat with this difference. But this is a big data set. So then Ingrid Nembhard, the doctoral student with whom I wrote this paper up, and I said, but is it deterministic? Is it this way in all of the units? So we had twenty-three units.

We take a look at them separately and we find that it's actually all over the map. In some of them, sure enough—and this is just too confusing to look at all three. This is just physicians and nurses. In some of them the difference is there. In others the difference is nonexistent statistically. In one case it's reversed. I'm not sure what's happening there, and so on.

So what we go back to is, what made the difference was inclusive leadership. We had a variable in this survey, the variable that helps us figure out when those status-based psychological safety differences are small or when they're big is the inclusive leadership by the physicians.

__: So do the physicians look better than the nurses, or are the nurses better than the physicians?

PROFESSOR EDMONDSON: The physicians feel more able to express what's in their heads than the others.

__: Higher is better.

PROFESSOR EDMONDSON: Yes. Higher is better in this. So these are items like the reverse of if you make a mistake in this unit you get in trouble. It's easy to ask other people who work in this hospital for help when you don't know how to do something, and so on. So physicians, no problem: I can ask you for help without even thinking about it.

The problem here is that the physicians actually float in and out. The nurses are really there all of the time. The patient's care is as dependent on the nurses and the therapists. So we want everyone jumping in.

When we ask about leadership inclusiveness, we take out all of the physician ratings from the data because they're uniformly high: "Yeah, I'm terrific." So there's just no variance there. It's not very predictive. But when we ask the other people who work there, how inclusive are these physicians? Then we get lots of variance in it and it's very predictive of a number of interesting things.

So, okay, that's a long pasture on the interpersonal climate and what a key role that can play in an organization's ability to learn. And I'll say more about how we change that later.

Do Hospitals Learn From Problems?

But let me just take a few minutes to talk about problems and learning from problems. So we saw that it can be challenging to learn from errors. In this study—this is a study with a doctoral student, Anita Tucker, who is now a professor at Wharton. Anita and I did this study in which she wanted to understand how nurses solve problems in hospitals. She had a very good background. She had a very interesting background. She had been a manufacturing engineer and she'd spent a lot of time at Pillsbury. And she had spent time on the factory floor doing root-cause problem solving with the operators. So when the frosting didn't go in the can in quite the right way, there was Anita on the floor helping the operators go down through the root cause, the Five Whys, and so forth. And she was very impressed by their ability to do this.

And so when she came to graduate school she wanted to study healthcare. She thought that was an important area to study, as do I. And she wanted to study how nurses respond to the problems

they encounter. And she figured these highly skilled professionals—often bachelor's-trained, often even master's-trained—would be extraordinarily good at this and she was eager to learn.

So off she went. She selected nine hospitals from Massachusetts by going to the Massachusetts Organization of Nursing Executives and asking them to nominate hospitals that really were excellent in terms of working on quality improvement because she wanted to know, what does this look like when it's good? And so that's what she did. And rather than just sending a survey or something arms-length, she really went in there essentially with a clipboard, with a stopwatch—almost Frederick Taylor reincarnated—and she wanted to know exactly how long people spent doing everything they did. She is a very patient soul.

This is one of the first things that I can say about what she found, which is that nurses are very well aware of the problems that they encounter, and they encounter a lot of them. So on average, she found a problem—so something that got in the way of completing a designated task—occurred about once an hour.

Then the next thing we notice is that there are two qualitatively distinct responses to the problems encountered. The first she called “first-order problem solving.” And it simply meant to do what it takes to get by, get around, solve the problem so as to continue to care for the patient. The second response is “second-order problem solving,” which is do what it takes to care for the patient and something else to in some small way help either to learn from why did this happen or prevent it from happening again. So bachelor's-trained, nurse-trained. Anita, I might have mentioned, is a very nice person, and she was rather lenient in her assessment of what constituted a little bit of effort toward doing something to prevent this from happening again.

So that said, what percentage of the problems that we saw, which was something like 190, do you think were responded to with second-order problem solving versus first-order? So just some numbers.

__: Twenty percent.

__: Five.

PROFESSOR EDMONDSON: Twenty? Five? A pessimist. Other numbers?

__: Five percent.

PROFESSOR EDMONDSON: Five? Oh she's a . . . You're a physician, Leila? Oh dear. Okay, anything else? Five, twenty, well, you know what? I was hoping someone would just go up to forty or something. But despite Anita's great leniency—Leila is right and Katherine as well—only four percent even got this partial-credit answer here.

And so the question becomes why. And with all of this lovely qualitative data that she collected we're able to identify a few drivers of this response, of this phenomenon. And we have to be a little careful because this list that I'm about to put up is actually a list that, as management theorists and management teachers, we would consider a list of good things.

So here is the first one: Efficiency. Efficiency is clearly something you didn't leave here five, ten, twenty years ago thinking was a “bad.” It's a management “good.” So why would efficiency be a problem here? Well, we know it's present. We're evermore cost-conscious in healthcare. Nurses are evermore strapped for time. Most hospitals are full to capacity and people are really struggling. And you can see how this might work. We're way too busy to even stop and make that phone call. So it's not that puzzling. It is something that we're going to have to wrestle with in a minute.

Second: Professional norms. Another good thing. You go to professional training to develop a set of norms that is shared by your colleagues far and wide, whether you meet them or not. Now, one of the—unfortunately, I think—partially antiquated norms in both nursing and medicine is the norm that I can do it all by myself. That is what a professional does. A professional learns a body of technical expertise and applies it toward, in this case, the care of others. And this is something I was trained to do. I know how to take care of patients. I will do it. Fine.

Third: Empowerment, which in this case can easily be interpreted as don't bother managers, right? The problem here is that managers, especially in the hospital setting, are the very people who are positioned such that they do cross the boundaries. A problem might be there are no linens where you need them. Well, linens aren't produced in the unit. They come from somewhere else. So a very large number, in fact something like 80 percent of the problems she identified, were problems that explicitly originated somewhere else other than where they showed up to make difficulty.

So if that isn't the job for managers, I don't know what is. They are the ones who are now positioned to see how the pieces fit together, while you are down there on the front lines taking care of patients.

So we have drivers. We also have some reinforcers. Efficacy. It works, right? These little workarounds work. So what's the big deal?

And of course, gratification. It actually does feel psychologically fulfilling to be able to pull this off. And let me give you an illustration of that. An oncology floor nurse says, "Working around problems is just part of my job. By being able to get IV bags or whatever a patient needs, I can do my job and have a positive impact on a person's life—like being able to get them clean linen . . ." This was a recurring problem everywhere we went. "And I am the kind of person who does not just get one set of linen. I'll bring back several . . ." for my friends. That's awfully nice. What's wrong with it?

___: It doesn't solve the core problem.

PROFESSOR EDMONDSON: Not only does it not *solve* the core problem, it *perpetuates* it. And in this moment made a problem for someone else somewhere else who, "Hey, we don't have to worry about them right now." But wonderful attitude. I mean, healthcare is saved on a daily basis by people with all of this commitment and motivation.

But, at the same time, we do have some rather significant unintended consequences of this workaround or first-order problem solving dominance—96 percent of them.

First of all, with Anita's careful note taking, she found that an average of over a half-hour per nurse per shift was spent in workarounds, each one three or four minutes—not so bad. But when you start adding them all up, it's real money. It's real money, it's real time. And she also found that on average, nurses were working forty-five minutes overtime, unpaid, just to get things sewn up to the point where they felt comfortable going home. So over time, that has some potentially serious consequences of burnout, as I'll say in a minute. But also, as we have already discussed, the organization is not learning from the great intelligence that they have.

So over time, what we have is a system that looks at first like it's in equilibrium because, hey, problem happens, fix happens. Everything goes on. But, in fact, we see in system dynamics terms, from our friends down the river, we see a system that is in a slowly eroding mode and very much being seen in terms of nurse burnout and nursing shortages that we're beginning to see across the board. And let me just illustrate that here.

"I put my heart and soul," a nurse told us, "into my role as a nurse, and my reward is patient satisfaction. Therefore, I would never quit my job. I do feel sometimes that I'm working with one

hand tied behind my back, tied by lack of supplies, etc. My job is physically demanding. I don't know how I will be able to continue until retirement." And that's a sentiment we heard far and wide.

Levers fostering a second-order problem-solving response

So what do we do? Well, in a paper that Anita and I wrote up for *California Management Review*, we developed a little system dynamics model and found the levers: Where is a little bit of managerial attention going to make a big difference?

And we suggest the following. Those managers that the empowered nurses don't want to go to, they need to provide a lot of support and help in this organizational learning process from problems. Nurses need to feel a high level of psychological safety to be willing to go and tell the other people from whom the problems originated that that had happened. And third, it's terrific to collect all of this data, but if nothing ever changes, we can be sure that the behavior of bringing it to our attention will also peter out. So just some small suggestions there.

A new cardiac surgery technology

And now I'll move on to another study that helps shed a little insight into, well, what are the factors that determine when organizations do better or worse at learning?

So I'm going to tell you about a study of cardiac surgery teams that two of my colleagues and I did. And this was an interesting opportunity. There was a particular new technology for conducting minimally invasive coronary artery bypass graft and valve surgery. And so rather than cutting open a very large incision, and sawing apart the breastbone, and having this great big wound—but, from the surgeon's point of view, a wonderful open surgical cavity in which to do the operation—we're trying to go through a relatively small incision. And that means that we need to have other ways of understanding exactly what's going on for the patient, for the heart, and so forth.

So there was a particular technology that came out, and we studied sixteen hospitals learning it at the same time. So what we found here was that the technology required people to work together in a very different, far more "team-y" way. I'll say more about that. We studied sixteen hospitals. All the teams studied were required by the company, to go through a three-day training program. My colleagues and I went to the program and we found it to have very high quality, to do a terrific job in not only emphasizing the technical skills but also the interpersonal skills that would be needed to pull this off. And they all go back and try to implement in their hospitals.

And then it turns out in the course of our study that fewer than half really succeed. And by succeed—nobody hurt anyone—but by succeed I mean they were able to pull off the organizational changes necessary to get this new way of doing an old procedure to stick and be used at least part of the time in their organization.

So the question is why. But before I give you what we found, let me just give you a quote from one of the hospitals that gives you a good sense of how hard they found it. This is from a team member. I won't tell you who yet. A team, by the way, an operating room team, consists of a surgeon, an anesthesiologist, scrub and circulating nurses, and a perfusionist, who is a technician who runs the heart-lung bypass machine.

And so this person says, "The perception that the surgeon has to know everything has to change. Each person has an important job. For minimally invasive surgery, you can't stop talking. I have to be able to tell the surgeon to stop. This is very new. I would never have dared to say anything like that before."

Imagine that: Nothing was that important that I would speak up to a surgeon. "So you have to develop a way to deal with communication in advance, such as anesthesia can be telling the surgeon what do," and so on. "It's got to be legitimate. Everyone has access to key information

and communication is essential. Anyone on the team can say something pertinent” —this is new— “that will affect the operation.” Which of the four roles do you think uttered this quote?

___: The lowest one. The perfusionist.

PROFESSOR EDMONDSON: You might think the lowest one. It has that feel, doesn’t it? Absolutely, so this is the surprise. This is another highly trained subspecialist. So this just is fun to include, because in this sort of medical status, we’ve got the technicians, and then the various kinds of nurses, and then we’ve got sort of pediatricians, on up to all sorts of subspecialists. And then way above, where the point is, are the cardiac surgeons, at least in their own . . . anyway we had fun in this study.

But I love that someone, who is himself—and it is a man—such an accomplished individual, saying, “I couldn’t possibly imagine having spoken up, without being asked, to a surgeon before.” And this was not even a very young person.

And so, views from the field, another data point to illustrate what this felt like from the point of view of the team members.

All these names are disguised—this is an urban academic teaching hospital. And here we have a twenty-year veteran operating room nurse, cardiac nurse. So very specialized, very experienced, saying, “Oh, boy, when I see one of these things”—these minimally invasive things on the list for tomorrow—it’s like, “Oh, do we really have to do this? Just give me a fresh blade and I’ll slash my wrists right now.” I mean clearly, a little bit of an exaggeration. But you can tell, by the way, this is a medical professional because of the fresh blade. We’re not going to have any infections on the way to suicide here. But really what she is saying is, “This thing is a drag. I just don’t want to change. I don’t want to do this. It’s not fun.”

You might think that this is shared far and wide. So we’re going to go across the country—actually, a little bit north—to another urban academic medical center. And, lo and behold, we have another twenty-year veteran coronary artery bypass specialist nurse, operating room nurse. And she says, “I was so grateful I was picked for the team. Every time we’re going to do one of these I’m excited. I feel like I’ve been enlightened.” So it’s the same technology, the exact same hospital, really—just one is in Chicago and one is in DC.

What’s going on? Same career history. And so I need to now tell you what’s going on, and it’s a leadership story.

Explaining Implementation Success

So, first of all, from the literature of technology adoption, none of that stuff matters in this case. And I think you can probably see why. By the way, it’s kind of curious that the academics didn’t do better than the communities, but we can get into that later.

High-level, like CEO-level, support: not important here. But that’s because these guys have so many resources and they’re so important already it doesn’t matter.

Project-leader status. Here I mean, was the surgeon who decided to lead the charge here, lead the change, a brand-new attending physician or the chief of the department? Not a difference. Of course, we don’t have a big data set, but anyway . . . So what did matter?

The journey: the implementation journey, the learning journey traveled by the team. I’ll go into some of the details of this just a little bit on the next slide.

But the way they approached it, the way they carried it out, in a sense, each operation was treated as not an experiment in the sense of, “Gee, I wonder if it will work,” but an experiment in

the sense of, “We have to learn as much as we can from this one so that the next one will be even better.”

So just to look at some of the contrasts here, we have some of the unsuccessful teams where they tell us that team preparation—by which I mean everybody went to training. So the difference was, when they got back to the hospital, what did they do following training and before the first patient? And here is a hospital who tells us, “Well, we kind of more or less looked at the room.” So not a lot of team-based preparation.

Psychological safety. Here’s one where the surgeon—a perfusionist reports to us that the surgeon said to him, “John, are you the first perfusionist on this case?” Because there’s the first and the second. He said, “No, I’m second.” “Well, in that case, I don’t want to hear from you.” So John said—John wasn’t his real name—“You see, it’s a very structured form of communication.” Not a lot of psychological safety.

Cross-boundary communication. This is an interesting variable. Here we have the cardiac surgery operating room. Now, for those of you who took a course in supply-chain management, upstream we have the cardiologists, who supply the patients who have the diagnosis that you might want to consider surgery here, to the cardiac surgeons. We get back into the operating room, and from here where do they go? Well, they go to the ICU for recovery.

So, in some hospitals we found enormous attention to sort of building relationships and understanding up and downstream. We have to make sure the cardiologists know what we’re doing here so they will send us patients. We have to make sure the ICU knows that these patients are different so that they will get them up and walking sooner, because they don’t have the big wound, and so on and so forth.

So here in places where they would say things like, “There’s a territorial war in this institution,” we didn’t see a lot of adoption of the innovation. And “echo,” by the way, is the fluoroscopy technology that allows them to see what’s going on. It’s like ultrasound, basically, without being able to really see. An echo is normally something that cardiologists use, and cardiac surgeons have had no use for it. So if the cardiologist wouldn’t let you use the echo machine, you’re in trouble here. You’re not going to get very far.

So what does it look like when it works? Well, here, “We had a couple of talks in advance. We walked through the process,” as if there were a patient there. “It took two and a half hours.” We’re talking. “What would you be doing now? Melissa, what would you be doing now?” We’re talking about it as if it were happening, so that tomorrow there are no surprises, and so on; “no qualms about speaking up”; and a “hand-in-hand team approach” to taking care of patients.

So I wrote this up in another *California Management Review* paper. And the difference here as I saw it, as I reflect back on what’s really going on, is that the local leaders—in this case, the surgeons—have framed the opportunity or the initiative, if you will, in a completely different way. So we analyzed the text of 165 interviews, and so on. And in the successful learners, they have framed the opportunity as an aspiration, as something that we can be excited about because we’re going to make a positive difference in the world.

In some of these hospitals we heard things like, “This is about helping patients recover fast,” or sometimes, “This is about being on the leading edge. We’re great. We’re going to adopt before other people do.”

Down here we heard things like, “Well, the hospital across the street is doing it, and if we don’t do it, they’re going to eat our lunch.” So that’s where the wrist-slitting groups come in.

That’s just not a good reason to have all of that extra work and all of that extra fear of trying to learn to talk to each other in a new way. The leader was much more expressive about needing to

hear from people, needing their help, versus seeing it as something, “Hey, I’ve learned new things before. I’m a really smart guy. I’ll learn new things again.”

And finally, the team saw their own role as really being a team doing something exciting, versus as support staff there to support the surgeon. And that really made a difference.

The Leader’s Job

So I’m talking about leadership. So let’s bring this home by specifically spending a little time articulating, well, what is the leader’s job in all of this in getting learning going in the organization?

I think it’s late in the day for most of you. You’ve heard a lot of talks. And so I thought maybe a little multiple-choice test would make you feel good about your learning thus far.

So the question is, how do you become a learning organization? And option A is: You declare yourself a learning organization. This is the option of choice for most of corporate America. And B: You humbly embark on a long journey—and the “humbly” is important here—of building collective capabilities, identifying performance and opportunity gaps, and then systematically tracking results.

So I’ll give you an example of an organization I think did this well. And we’ll start by saying that the leader’s job here to make that journey happen is to start off with creating a sense of urgency, getting people engaged. There’s got to be a reason why doing thing exactly as I do it now—which, by the way, I’m pretty good at—has to change, because that’s not fun for most of us. None of it’s going to go very far, as I’ve argued before, if we don’t create a climate of psychological safety for taking these interpersonal risks.

And then finally, building and supporting a team-based infrastructure. And this is going to need a little bit of illustration for experimentation and learning. So one at a time here.

Now, Julie Morath was the chief operating officer of Children’s Hospital and Clinics in Minneapolis, Minnesota, and she came in, in late 1999. She was recruited to come in. And she said, “Well, I will really only take this job if you let me lead a patient-safety initiative.” She said, “I have a vision of this hospital becoming a place which is 100 percent safe for the children who are admitted here.” So the CEO, and the Board, and so on, said, “That’s terrific. We’re happy to have you come and do that.”

She got all of the key people to sign off. And now she’s on board, and she goes out and she gives lots and lots of talks. She provides people evidence from the Institute of Medicine report, which was newly released, and gave us those rather staggering statistics that most of us are familiar with by now—that somewhere between 49,000 and 98,000 people are killed each year in hospitals in the United States by medical errors. So Lucien Leape and his colleagues have put this in the evocative terms of some number of jumbo jets going down every day. And, you know, we wouldn’t tolerate it.

Okay, so, Morath, Children’s Hospital. She’s talked about these data. They’re still new. Everybody hasn’t heard them yet.

How do you think people who work at Children’s Hospital respond to this? Now, she’s a lovely person, and I think they probably had no problem with her, but she just came from the outside. “What does she know about us, right? And, by the way, what do those national data have to do with us? Sure, we believe you. The U.S. healthcare system may have some problems, but not us. We’re doing very well here. Our quality is terrific. Oh and, by the way, we’re a children’s hospital and we don’t hurt any children here.”

So, Morath bangs her fist on the table and says, “You guys just don’t get it,” right? That’s not what she does.

Actually what she does is a very interesting model of leadership for learning. She says, “Maybe you’re right. After all, I just got here. So let me invite you to think about, in the privacy of your own mind, your experiences last week”—very concrete—“on the wards with your patients. Was everything as safe as it could have been?”

She said, “My office became a confessional.” It’s just inquiry. So how is that possible? How could people shift from, “We don’t have a problem, because you’re absolutely right,” to everybody realizing they have a problem? Are they just inconsistent? Are they lying? What’s going on?

__: Maybe just creating a new forum in which people were safe to express . . .

PROFESSOR EDMONDSON: Absolutely. Creating a kind of context where she has made it safe. And she’s clearly communicated that she’s a safe person. George?

__: Moving from “You have a problem,” to “We have a clear resolution to help you.”

PROFESSOR EDMONDSON: Right. So, it’s encouraging.

__: But often there is a perspective that you don’t know you have a problem, so the introspection causes folks actually to identify what they didn’t observe before.

PROFESSOR EDMONDSON: You bet. That’s true. I had to stop to think, and then I realized, “Oh, yeah, that thing is a hazard. That thing is a hazard. We just escaped by the skin of our teeth with that one.” Dan?

__: Or perhaps she helped them have a different point of perspective to look from. They were looking at safety in the past, safety as it is today, compared to what it was historically or throughout their career.

PROFESSOR EDMONDSON: That’s a good point. She’s reframed it for them, that we really actually want it to be 100 percent.

Another phenomenon that we see in healthcare in particular is that most caregivers, whether physicians or nurses, have either had a close call or a bad incident, or are very close to someone who has experienced an adverse event caused by human error or system error.

So it turns out that most individuals have had an experience like that. And at the same time most individuals think they’re alone because it was not discussed. And so it became this very . . . She unleashed the conversation by saying, “You may feel you’re the only one, but you can now come and talk to me.”

__: I would assume that that’s how she delivered her original message. She didn’t come in and say, “We’re making a lot of mistakes. We’re going to 100 percent patient safety.”

This person, Julie Morath, was smart enough to know how to deliver the message.

PROFESSOR EDMONDSON: Exactly. But many leaders aren’t. I mean, she came in and said, “The centerpiece of my activity is to create 100 percent patient safety.” Now there are going to be plenty of people who think, “We’re actually doing pretty well on patient safety, but our bottom line stinks. You’re the COO.” So there are other things you could do. It turns out that they actually will go well together. If we can nail this problem, some other things will start looking good, too.

But the point here is that this is first. I have to get your attention. And I think the way she got our attention was very effective, really through that inquiry.

And so second, we have to make it safe to speak up, which I think she did by her manner, but she also did by a formal policy called “blame-free reporting.” And, by the way, with blame-free reporting, she was at the same time very clear about what constitutes punishable misconduct. So it’s not just “anything goes, do what you whatever you want, it doesn’t matter.” In fact, her list of punishable misconduct includes such things as reckless behavior. Of course it does, and on and on. And then it goes down to things like “knowingly operating well beyond your own boundaries.” That’s a little more subtle. That’s essentially a failure to ask for help when one should have asked for help. That’s punishable misconduct. Interesting.

But for all errors, all small things and big things that go on, we need to hear about them right away so that we can learn from them. When we do this as a leader, whether we’re leading a police precinct, a school system, or anything else, and we say we’re going to start talking about the things that aren’t working, one of the things we have to do as a leader is inoculate ourselves against the negative attention from ourselves, the press, our customers, whatever else—anticipate the worse-before-better effect.

Now, this is Children’s Hospital at the moment that blame-free reporting is instituted and these are events reported. So, as you can see, it worked. Although, as you can see also, suddenly our numbers look awful, unless you’re interested in learning, and then they look, well, at least we have something to learn from.

But one doesn’t quite know how to interpret. Are they doing better? How do we know? So this is the sort of sticky tricky problem of measurement. But at the moment, we better make sure the local paper knows that this is on purpose in some way, shape, or form.

A Team-Based Learning Infrastructure

And finally, empowering a team-based learning infrastructure. The key here is that no leader, no matter how effective, is going to do all of this alone. The devil is in the details. The actual work of the learning organization goes on at the level of tasks, at the level of where the work is done.

And so what Morath did here was, first and foremost, she said—I mean, she did come in saying, “I have a vision. I want to lead a change.” But one of the very first things she did was to create a leadership team for the change—not for the hospital; for the change. And the leadership team was called the Patient Safety Steering Committee [PSSC]. And it was a deliberate diagonal slice through the organization, with people from a variety of medical and other areas, and a variety of levels. Union representation even had a parent on it. And this was the group that was going to lead the change initiative. A very powerful device.

The other thing this group did was avoid telling everyone exactly what you should do. So this is not a roll-out model of change management: “Here is the program. And by October 15, you will have gotten everybody through the following training, and so forth.” Not that. It was sort of spreading the message, creating some space and some time.

And what happened was, one day a nurse name named Casey Hook, an oncology nurse, came up the idea for a safety action team in oncology. She said, “You know, we ought to have a team meeting, and anyone who wants to be on it, sign up. We’ll make a team. On Friday afternoons we’ll have a safety action team meeting, and we’ll just identify, and discuss, and figure out how to get rid of hazards in our unit.” Once people got wind of this idea, they started their own safety action teams. So it wasn’t my idea. It wasn’t the PSSC’s idea. It was a sort of organic evolution from the front lines to try to attack this great big problem. And it worked rather well.

Another organic example came from the front lines. Somebody had the idea of a “good catch” log. So these are the consequential errors that are caught and corrected before they come anywhere near a patient, which is, of course, good news. So people want to celebrate them and spread the news of these small wins. They’re also bad news in that something went wrong in the first place. But they start giving us some very interesting data from which to learn.

Recently, at Children's Hospital, here in Boston, they made a list of the five years of the really big, bad adverse events that had occurred for patients. And they discovered that all thirty had the exact same cause, which is essentially a failure in horizontal communication across subspecialties. So when you start accumulating data that used to be looked at one by one, you learn new things. You get new insights.

So that's Children's Hospital. It's a wonderful case that we teach. And I think it tells a good story of what does it really look like—this sort of organic, unfolding, iterative, messy nature of organizational learning, and how it really does have to be led.

So in parting, two final slides. I'm going to speak to all of you now as managers, as leaders, with some cautionary thoughts from Anita's study. So we're going to rethink the ideal employee.

Most of us in our hearts of hearts, or maybe more explicitly, would like to have the ideal employee working for us on our team. And the ideal employee, of course, is someone who, when facing problems or small failures, adjusts and improvises; doesn't bother anyone; seamlessly corrects for errors; allows the impression of not making mistakes; very committed to the processes and the organization.

So we can easily see the shortcomings here of the ideal employee: We are not going to learn much, nor are her colleagues going to learn much. But we also don't want to belittle this person, because she is literally keeping healthcare alive day in and day out, as we speak.

So now, tongue firmly in cheek, I'm going to argue that who you really want working for you is a noisy complainer, a nosey interrupter, a self-aware error maker, and a disruptive questioner who just won't leave well enough alone.

So maybe not. The yellow [highlighted] terms are deliberately exaggerated. The white text underneath them is not. It talks about the kinds of behaviors that your organizations actually need for learning to occur. And we need those behaviors left, right, and center. And yet if our cognitive and emotional processes are sometimes hard-wired to prefer and want these people around us—we have a way of kind of subtly communicating to these others that we're less enthusiastic about hearing from them—then we're in trouble. So you make it happen.

Thank you very much for your time. Enjoy the rest of your time here.