How E-learning Works / 电子学习（E-learning ）是如何实现的

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1. Introduction to How E-learning Works

1.电子学习( E-learning)是如何实现之绪论

The buoyancy and air supply equipment have been checked. All gauges are working correctly. The divemaster is directing you to the dive platform. It‘s sunny, but slightly windy, so the water is choppy. Your wet suit is on, and you have your fins in hand. You‘re diving from a small boat so you choose the seated backroll to enter the water. You place your fins on your feet, position yourself on the edge of the boat and check to make sure your tank bottom is extending out beyond the edge of the boat over the open water.

浮力和供气装置已检查完毕，所有的仪表都在正常工作。潜水长正领着你走向潜水平台。天气晴朗，但有几缕微风，因此海面上有些波澜起伏。你穿好了潜水衣，手里拿着脚蹼。你将从一条小船上跳水，所以选择背向坐姿这一姿势入水。你戴好脚蹼，坐在船边，在开阔的水面上，检查并确认你的气瓶底部已经跃过了船舷。

You turn on your air and place the regulator mouthpiece in your mouth. One hand holds your mask while the other holds your regulator. So far so good. Time to make the entry. You enter the water backward, reorient yourself and bob to the surface. While thinking about what you need to do next, you forget to move out of the way for your buddy to enter the water, and you get a warning from the divemaster. After moving back from the boat, you place the regulator mouthpiece in the water. You place it face-down to prevent free-flow. You then replace the regulator mouthpiece in your mouth and exhale to clear it. You carefully inhale to make sure it is completely cleared.

你打开供气装置，并将呼吸调节器的咬嘴放入嘴中，一只手扶着面镜，另一只手握住呼吸调节器。到目前为止，一切都还不错，到了入水的时间了，你从后方跃入水中，使自己适应周围环境之后，开始在水面上上下浮动。当你在考虑下一步需要怎么做时，忘了挪开位置以便于你的伙伴入水，因此受到了潜水长的警告。把位置让开之后，你将呼吸调节器的咬嘴口朝下放入水中，以防止漏气。然后，把咬嘴再次放进嘴里，并轻呼一口气把咬嘴弄干净。你小心翼翼地吸气以保证咬嘴完全被清理干净。

You adjust your buoyancy compensator (BC) to make yourself more buoyant while you wait for the others to enter the water. While you are waiting, you remember to clear your mask. Now the divemaster has signaled that it‘s time to descend. You vent your BC using the deflator valve and concentrate on breathing shallowly. You descend slowly down into the darkness. As you descend, you remember to exhale some air into your mask to prevent a mask squeeze. Your fins are still as you descend. A glance at your dive calculator shows you that you‘ve passed the 15-foot mark. You‘re beginning to see some fish and other marine life. A large jellyfish glides past you.

你调节了一下浮力调整器（BC），以使自己在等待其他人入水时具有更大的浮力。当你在等待时，你记起来清理面镜。现在潜水长发出信号，到下潜的时候了。你通过使用排气阀调节你的浮力调整器，同时集中精力进行微微的呼吸。你慢慢地下潜到一片黑暗之中。当你下潜时，你记起来排出面镜中的空气来避免面镜挤压。你的脚蹼在你下潜时静止不动。你瞥了一眼潜水计算机，其显示你已经越过了英尺标记。你现在开始看到更多的鱼和其他海洋生物。一只巨大的水母滑过你的身边。

You‘re finally at the bottom and see your buddy and some of the other divers, but something is wrong.

你终于来到海底了，而且看到了你的伙伴和其他的一些潜水员，但是好像有点不对劲。

A bell chimes and a red box with white text flashes on your monitor. A synthesized female voice calmly reports, "You did not equalize the pressure in your ears by using either the Valsalva maneuver or the Frenzel maneuver. You have just ruptured your ear drums, which can also result in vertigo. Vertigo can be deadly when experienced underwater. Please return to the online training module, then try the simulation again."

一阵铃声响起，一个红底白字的对话框在你的显示器上闪烁着。一个系统合成的女声平静地说道：“你没有用Valsalva maneuver（堵鼻鼓气法，口鼻闭气，用手指夹紧鼻腔，作呼气动作造成口鼻腔内压增大，使得两侧咽鼓管在压力下呈打开状态，以使得内外压力平衡，译者注）或 Frenzel maneuver（夹紧鼻子并作吞咽工作，使得空气快速进入咽鼓管，译者注）来保持耳压平衡。你刚才已经弄破了你的耳膜，这会造成晕眩。在水下发生晕眩是致命的。请回到在线培训模块，然后再来尝试模拟环节。”

This passage is an example of e-learning in a simulated electronic environment. E-learning, Computer-Based Training (CBT), Internet-Based Training (IBT), Web-Based Training (WBT) and a host of other names picked up along the way may be the wave of the learning future for people of all ages. Immersing yourself in a 3-D environment or simply interacting with characters or objects on the screen can be a very good way to learn a new skill. The popularity of online training has grown significantly since the early 1990s.

这个片段是在电子模拟环境下电子学习的一个实例。电子学习，基于计算机的学习（CBT），基于因特网的学习（IBT），基于网络的学习（WBT）以及其他一些在其发展过程中得到的名称，可能是未来所有年龄段的人们学习的潮流。使你自己沉浸在3D环境中，或者仅仅与显示器上的人物或者物体进行互动都能够成为一种学习新技能的非常好的方法。自从20世纪90年代早期以来，在线学习的受欢迎程度开始大幅度的提高。

In this article, we‘ll visit the field of electronic learning, find out how it works and what makes it effective both from the learner‘s perspective and the training producer‘s perspective. We‘ll also take a look at the reality of e-learning by examining the technology from a company called Trainersoft®. Trainersoft‘s technology helps to create e-learning modules using non-technical interfaces that allow almost anyone to get started very quickly.

在这篇文章中，我们将会了解电子学习的领域，弄清楚它是如何实现的，以及是什么使它从学习者和培训制作者的角度来看，都是如此有效的。我们会通过研究一个叫做Trainersoft®公司的技术来了解电子学习的现状。Trainersoft的技术通过使用一种几乎让每个人都能很快上手的非技术性界面，来帮助人们创建电子学习模块。

2.What is E-learning?

2.什么是电子学习?

E-learning is to classroom learning as cell phones are to a pay phone at the bus station.

电子学习和课堂学习的关系就像手机和公交车站付费电话之间的关系。

Well, at least it is in some ways. For instance, e-learning allows you to learn anywhere and usually at any time, as long as you have a properly configured computer. Cell phones allow you to communicate any time and usually anywhere, as long as you have a properly configured phone.

呵呵，至少在某种程度上是这样的。比如说，电子学习可以让你在任何地方，而且通常是在任何时间学习，只要你有一台正常配置的计算机。手机允许你在任何时间，而且通常是任何地点与他人进行沟通，只要你有一部正常配置的手机。

E-learning can be CD-ROM-based, Network-based, Intranet-based or Internet-based. It can include text, video, audio, animation and virtual environments. It can be a very rich learning experience that can even surpass the level of training you might experience in a crowded classroom. It is self-paced, hands-on learning.

电子学习可以是基于光盘的，基于网络的，基于公司内部网的，或者基于互联网的。 它可以包括文本，视频，音频，动画以及虚拟环境。它可以成为一种及其丰富的学习经历，这种经历甚至可以超过你在拥挤的教室中所能感受到的培训水平。电子学习是一种自定进度，具有实践性的学习方式。

The quality of the electronic-based training, as in every form of training, is in its content and its delivery. E-learning can suffer from many of the same pitfalls as classroom training, such as boring slides, monotonous speech, and little opportunity for interaction. The beauty of e-learning, however, is that new software allows the creation of very effective learning environments that can engulf you in the material. We‘ll use software from Trainersoft as an example to show you how the process works.

同其他形式的培训方式一样，电子学习的质量在于它的内容以及教授方式。电子学习也会出现许多同样存在于课堂教学中的缺陷，比如枯燥无味的幻灯片，单调的讲课方式，以及没有任何互动机会。但是，电子学习之美在于新的软件能让人们创造出非常有效的学习环境，这些环境足以将你吞没于教学资源的海洋之中。我们以Trainersoft的软件为例来向你展现这一过程是如何实现的。

Levels of e-learning

电子学习的层次

E-learning falls into four categories, from the very basic to the very advanced. The categories are:

电子学习从最基本到最高级可以分为四个类别。这些类别是：

Knowledge databases -- While not necessarily seen as actual training, these databases are the most basic form of e-learning. You‘ve probably seen knowledge databases on software sites offering indexed explanations and guidance for software questions, along with step-by-step instructions for performing specific tasks. These are usually moderately interactive, meaning that you can either type in a key word or phrase to search the database, or make a selection from an alphabetical list.

知识数据库――虽然在实际的培训过程之中往往没有必要看到它们，但是这些数据库是电子学习的最基本形式。你可能已经在一些软件站点上看到过知识数据库，这些站点往往提供编写索引的说明，针对软件问题的建议，以及实现特定任务的逐步说明。在这种方式中通常会存在着适度的交互性，这意味着你可以键入一个关键字或者词组来搜索整个数据库，或者从按字母顺序排列的列表中进行选择需要查询的内容。

Online support - Online support is also a form of e-learning and functions in a similar manner to knowledge databases. Online support comes in the form of forums, chat rooms, online bulletin boards, e-mail, or live instant-messaging support. Slightly more interactive than knowledge databases, online support offers the opportunity for more specific questions and answers, as well as more immediate answers.

在线支持－在线支持同样也是电子学习的一种形式，并以一种类似于知识数据库的形式进行运作。在线支持通过论坛，聊天室，在线公告牌，电子邮件，或者实时消息这些形式来实现。在线支持比知识数据库稍具有互动性，并有机会为人们提供更为明确的问题和答案，以及更为即时的答案。

Asynchronous training - This is e-learning in the more traditional sense of the word. It involves self-paced learning, either CD-ROM-based, Network-based, Intranet-based or Internet-based. It may include access to instructors through online bulletin boards, online discussion groups and e-mail. Or, it may be totally self-contained with links to reference materials in place of a live instructor.

异步学习－这是较接近电子学习本意的学习方式。它包括基于光盘，网络，企业内部网，或互联网的自定进度学习。它可以包括通过在线公告牌，在线讨论组以及电子邮件的方式获得老师的帮助。或者，异步学习可能成为了一种完全独立的学习方式，因为它利用教学资源链接取代了活生生的老师。

Synchronous training - Synchronous training is done in real-time with a live instructor facilitating the training. Everyone logs in at a set time and can communicate directly with the instructor and with each other. You can raise your cyber hand and even view the cyber whiteboard. It lasts for a set amount of time -- from a single session to several weeks, months or even years. This type of training usually takes place via Internet Web sites, audio- or video-conferencing, Internet telephony, or even two-way live broadcasts to students in a classroom.

同步学习－同步学习通过实时与一名真实的老师进行互动来促进教学。每一个人在一个给定的时间里登陆系统，并可以与老师或者其他学生进行直接的交流。你可以在网络中举手，甚至可以观看网络白板。同步学习会持续一定的时间――从一堂课到几周，几个月甚至几年。这种类型的学习方式通常通过互联网，音频或者视频会议，网络电话，甚至对班级中的学生进行双向直播这些方式来实现。

Let‘s move on to how learning works.

接下来让我们讨论我们是如何学习的。

3.The Psychology of Learning

3.学习心理学

Let‘s begin with what goes on in a person‘s head when they are learning. First, learning requires attention. In order to be effective, training has to grab that attention and hold it. Unfortunately, the neural systems in the brain that control attention and store information as memory get tired very quickly (in minutes). They need to rest every three to five minutes, or else they become much less responsive. They recover pretty quickly, but training has to work with this quick fatigue/boredom pattern in order for the person to learn efficiently. In other words, those neurons will seek other stimulation usually not in the form of the presented training.

让我们从人们学习时，其大脑是如何运作的这一方面着手。首先，学习需要集中注意力。为了让培训更为有效，它必须抓住并且保持住学生的注意力。不幸的是，在大脑中控制注意力和以记忆的形式储存信息的神经系统很容易就会感到疲劳（在几分钟的时间）。它们需要每隔3－5分钟时间休息一次，否则它们的反应能力就会大大减弱。神经系统恢复的非常快，但是为了使人们能够更有效地学习，培训必须适应这种快速疲劳/厌倦模式。换句话说，那些神经细胞将会寻求其他刺激，而那些刺激通常不会采用当前的培训内容这种形式。

Training that is patterned to move from one set to another provides the most effective learning model. The patterns those neural sets respond best to involve interweaving different types of information and using different areas of the brain. For example:

培训这种从一种形式过渡到另一种形式的模式为我们提供了最有效的学习模式。那些能让神经系统做出最佳反应的模式包括将不同类型的信息的组织在一起，以及使用大脑的不同区域进行学习。 例如：

Listening to a fact

e.g. Flour, when mixed with eggs, can be kneaded into a dough and cut into shapes for pasta.

Relating a concept to that fact

e.g. Foods that are high in carbohydrates help the body generate energy.

Visualizing the two together

e.g. Sports teams need quick energy that can be provided by carbohydrates, so they often have a meal of pasta prior to games.

了解事实

例. 当面粉中混合鸡蛋之后，我们就可以把面粉捏成一个生面团，并且将它切成一定的形状来做意大利面。

将概念与实际联系起来

例，含有大量碳水化合物的食物有助于身体产生能量。

将两者形象化

例. 体育社团需要由碳水化合物提供的快速能量，所以，他们经常在比赛前吃一顿意大利面。

These systems are interrelated and work together to form memory (i.e. learning). The goal is to form memory in each neural system. So, information that is designed in a way that moves from neural system to neural system creates more effective learning.

这些系统之间是互相联系的，并且共同作用（例如，学习）形成记忆。我们的目标是在每一个神经系统中都形成记忆。 所以，我们以这样的方式设计信息――从一种神经系统流向另一种神经系统，这可以让学习更为有效。

How E-learning Can Improve Retention

电子学习是如何减少遗忘的？

In addition to catering to these neural systems‘ needs, training should also incorporate other elements such as interaction, imagery and feedback.

E-learning can incorporate many elements that make learning new material, a new process or a new program more fun. Making learning more fun -- or interesting -- is what makes it more effective. If you aren‘t pulled into the material, you really aren‘t learning as well as you could be. This is what makes e-learning so great for so many types of learning. Obviously, every type of training can‘t be turned into e-training, but many can with excellent results. The keys to successful e-learning include:

除了迎合满足这些神经系统的需求，培训还应该包括如互动，形象化以及反馈等其他元素。电子学习可以包含很多元素，这为学习新材料，新方法以及新课程带来更多的乐趣。让学习充满更多的乐趣――或者变得更吸引力――能让学习变得更为有效。如果你不投入到学习材料之中去，你就不会真正地尽你所能地学习。这使得电子学习对许多学习类型都非常有效。很明显，并不是每一种学习类型都能够转化成电子学习，但是对于大多数类型，电子学习会为其带来出色的效果。电子学习成功的关键包括：

Varying the types of content - Images, sounds and text work together to build memory in several areas of the brain and result in better retention of the material.

内容类型的多样化－将图象，声音以及文本结合在一起可以在大脑的许多领域中形成记忆，并且会使学生更好地记忆学习内容。

Creating interaction that engages the attention - Games, quizzes and even just required manipulation of something on the screen creates more interest, which in turn builds better retention.

建立能够吸引注意力的互动－游戏，测验，甚至是只要求学生在屏幕上操作的活动都会引起他们更多的兴趣，这样最终会使他们更好地进行记忆。

Providing immediate feedback - E-learning courses can build in immediate feedback to correct misunderstood material. The more immediate the feedback the better, because each step of learning builds upon the previous step. If no feedback is given, then the next step may be building upon an incorrect interpretation.

提供即时反馈－电子学习课程能够提供即时反馈来纠正学生误解的内容。反馈的速度越快，反馈的效果就越好，因为每一步学习都是建立在先前的基础之上。如果没有任何反馈，那下一步学习就很可能建立在一个错误理解的基础之上。

Encouraging interaction with other e-learners and an e-instructor - Chat rooms, discussion boards, instant messaging and e-mail all offer effective interaction for e-learners, and do a good job of taking the place of classroom discussion. Building an online community significantly influences the success of online programs.

鼓励与其他电子学习者和电子课程的教师进行互动－聊天室，论坛，即时信息以及电子邮件都可以为电子学习者提供有效的互动过程，这在替代课堂讨论方面表现尤佳。建立一个在线社区对在线课程的成功具有及其重大的影响力。

To simplify incorporating these types of elements into training, Trainersoft developed simple tools that allow you to drop in animations, video or other media, and set special attributes for them such as:

为了简化将这些类型的元素融入培训的过程，Trainersoft开发了一些简易的工具，这些工具可以让你方便的使用动画，视频以及其他媒体，并使这些媒体具有特殊的属性，比如：

Hot spots that link to another file or image

Transition effects

Pop-up questions

Audio responses to questions

Flash and Shockwave files

Javascripts

CGI (common gateway interface) scripts

Other effects that make objects react to the user‘s actions

链接到其他页面文件或者图片的热点

切换页面时的特效

弹出式问题

对问题的语音回复

Flash 和 Shockwave文件

Java脚本语言

CGI(公用网关接口)语言

其他能使网页元素响应使用者操作的特效

Self-paced

自定进度

E-learning lets you go through the course at your own pace. This helps avoid missed information in situations where you either have to leave the course for an outside emergency or you just don‘t catch what the instructor said.

电子学习能让你按照自己的进度来安排课程学习。这有助于避免错过上课内容的情况，这种情况往往发生在你必须为处理外部紧急事件而退出课程学习，或者你不明白老师到底在说什么的时候。

E-learning courses offer user-controlled elements that just aren‘t feasible in regular training classes. For example, differentiating the sound of an irregular heart beat from that of a regular heart beat by clicking on icons on the screen allows the learner to listen at their own pace and replay the sound as often as they like. This self-paced element is one of the things that makes e-learning so effective.

电子学习课程为学生提供用户控制元素，这在常规的课堂教学中是不可行的。例如，通过点击屏幕上的图标来让学生区别不正常与正常的心跳声，这能让他们按照自身的进度来仔细听，并且每当他们想听时，都可以重新听这些声音。自定进度要素是让电子学习变得如此有效的原因之一。

Interactive

互动性

Another element that e-learning offers is interactivity. This type of interactivity can be in the form of simply clicking on appropriate responses to questions, clicking to animate an object or start a process, or dragging and dropping items to practice a skill.

电子学习所能提供的另一元素为互动性。这种类型的互动可以有以下几种形式：简单地点击问题所对应的正确答案，点击一个物体使其播放动画或启动一个程序，或者拖动和放下一个物体来实践某种技能。

Interactive games based on the training message are also very effective at improving learning. Now, you may be thinking of "Doom" or "Tomb Raider," but gaming in a training setting doesn‘t have to be quite that elaborate -- although it certainly can be!

以培训内容为基础的互动游戏在提高学习效果方面非常有效。现在，你可能会想到游戏“毁灭战士”（DOOM）和“古墓丽影”（Tomb Raider），但是培训情景下的游戏并不需要做到如此栩栩如生，尽管它们确实可以达到这一要求！

Think about games where you go through a series of tasks, learning about the environment, and use tools you‘ve discovered along the way. Those same techniques can be incorporated into many types of learning programs. Games can take you through an adventure in almost any type of scenario. Being able to explore, try, succeed or fail makes good training.

当你需要完成一系列任务，学习周围环境，并且使用在一路上发现的工具时，考虑下采用游戏这种方式吧。人们可以在许多类型的学习课程中运用那些同样的技术。游戏几乎可以带你经历在任何环境下发生冒险活动。能够去探索，尝试，不管是成功或者失败都能够使培训变得成功。

For example, you may be a human resources manager taking an e-course on hiring techniques. The course might include a series of video and audio segments that take you through the processes. Then a game would begin that takes you through those same processes where you make the decisions in a virtual world. Suppose in the interviewing section you asked a question that is not allowed under the Americans with Disabilities Act. Bells might go off and a simulated team of attorneys might whisk you off to a virtual jail! When you do rather than simply read or listen to something, you retain more of the information, and learning from mistakes is one of the best ways to ensure you don‘t make those mistakes again. Think of it as cyber role playing.

例如，你可能是一位正在学习关于招聘技巧的电子课程的人力资源部经理。这一课程可能包括一系列引导你整个学习过程的视频和音频内容。接下来，我们会开始做一个游戏，这一游戏会带你经历类似于你在现实世界中做决策的过程。假设在面试环节，你问了应聘者一个美国残疾人法规定不允许询问的问题。铃声可能会响起，一组虚拟律师会匆匆地将你带进虚拟监狱。当你在进行操作，而不仅仅是在阅读或者听一些东西时，你会记住更多的信息，并且从错误中学习是一种确保你不再犯那些错误的最好的方法之一。你可以把它当成网络角色扮演。

This type of game scenario could be easily created in Trainersoft by using photos or graphics, and applying hot spots that link to video clips. Once the video clip has played, a multiple-choice quiz box could pop up that asks the user what he or she should do next. The options for answers could be linked to individual video clips that play out that scenario. Once the scene has played, the results of the choice (i.e. whether it was the right decision or the wrong decision) could then be revealed as either a talking head video, an audio response or simply a text box. This scene could be as simple or as intricate as you want to make it.

这种类型的游戏场景可以通过使用照片或图形，和用来链接视频短片的热点在Trainersoft中轻松创建。一旦视频短片开始播放，一个包含多项选择的问题对话框就会弹出来，问学生他/她下一步应该怎么做。我们可以把答案选项与播放这一场景的各个视频短片链接起来。一旦场景开始播放，选择的结果（例如，这是正确的还是错误的决定）将会以说话头视频，语音答复或者一个简单的文本框来呈现。你可以按照你的意愿把这一场景做的很简单，或者很复杂

Motivating

激励

Being motivated to learn is half the battle. Knowing the course you are taking is going to have some "fun" elements like video, audio, animation and the "gaming" scenarios we mentioned above creates more interest and curiosity in learning. This, too, leads to better retention and faster learning.

受到激励而学习是成功的一半。当了解到你正在学习的课程中会包含一些有趣的元素，如我们以上提到过的视频，音频，动画以及“游戏”场景，这将会在学习中引起你更多的兴趣与好奇心。这同样会使你更好地记忆知识并能够加快学习进度。

Other motivating factors with e-learning are the conveniences that it offers, such as being able to go through the course any time and anywhere (almost). It is much easier to work training into a busy schedule when you don‘t have to take two days off to travel and then sit in a classroom.

电子学习的另一个激励因素是它所提供的便利性，比如（几乎）可以在任何时间任何地点学习。这使得人们能够更容易地把培训放入日程表中，因为你没有必要请两天假去旅行，然后坐在教室中学习。

Other e-learning elements that beat out the classroom scene

其他优于课堂教学的电子学习元素

Besides the bigger issues like interaction, control of the pace, and motivation, e-learning can readily put to use the information that researchers have been studying for the past 30 or more years. These studies have identified things that can greatly affect memory and recall. Some of the key research found significant improvements in recall when:

除了诸如互动，进度控制以及激励这些比较大的优势之外，电子学习还可以轻松地使用研究人员在过去的30年甚至更久之前的研究所得出的结论。这些研究已经识别出能够在很大程度上影响人们记忆和回忆的因素。一些重要的研究发现在以下的情况下，人的记忆力将会得到明显的改善。

using colors and specific color combinations

combining images with words

combining sounds (or voice or music) with images

using multiple types of media

using layouts that flow with the natural movement of the eye

使用颜色和特定的颜色组合

将图片与文字结合起来

将声音（人声或者音乐）与图片结合起来

使用多媒体

使用与眼睛自然运动协调一致的页面设计

4.Benefits of E-learning

4．电子学习的优势

E-learning has definite benefits over traditional classroom training. While the most obvious are the flexibility and the cost savings from not having to travel or spend excess time away from work, there are also others that might not be so obvious. For example:

电子学习确实有许多传统的课堂教学无法相比的优势。但最为明显的优势在于灵活性和节约成本，这些优势是由不需要旅行或在工作之外花费额外的时间所带来的，当然也有其他不是很明显的优势。例如：

It‘s less expensive to produce - Using Trainersoft‘s authoring software to produce your own asynchronous training programs, e-training is virtually free once you reach the break-even point. Synchronous programs will have continued costs associated with the instructor managing the class, but will still be lower than traditional courses.

制作成本稍便宜些－当你使用Trainersoft的编辑软件来制作自己的异步培训课程时，一旦达到收支平衡之后，电子学习的开发成本实际上是零。同步项目由于涉及到老师管理班级，因此需要持续的成本投入，但是这一成本仍然低于传统的课程。

It‘s self-paced - Most e-learning programs can be taken when needed. The "books" that you set up using Trainersoft create a module-based design allowing the learner to go through smaller chunks of training that can be used and absorbed for a while before moving on.

自定进度－大多数的电子课程都可以在人们需要时进行学习。你可以在使用Trainersoft编写的“课本”中采用一种基于模块化的设计，这种设计可以让学习者学习更小块的内容，并在继续学习之前先应用和吸收一会这些已学的知识。

It moves faster - According to an article by Jennifer Salopek in "Training and Development Magazine," e-learning courses progress up to 50 percent faster than traditional courses. This is partly because the individualized approach allows learners to skip material they already know and understand and move onto the issues they need training on.

进度更快－根据Jennifer Salopek在“培训和发展杂志”上所写的一篇文章，电子学习课程的进度要比传统的课程快50％。其中的部分原因在于个性化的学习方法可以让学习者跳过他们已经明白和理解的内容，并转移到他们需要学习的问题上。

It provides a consistent message - E-learning eliminates the problems associated with different instructors teaching slightly different material on the same subject. For company-based training, this is often critical.

提供一致的信息－电子学习可以消除不同的老师在教同一门课程中，由于使用略有差别的教学材料而带来的问题。在公司的培训中，这通常更为重要。

It can work from any location and any time - E-learners can go through training sessions from anywhere, usually at anytime. This Just-In-Time (JIT) benefit can make learning possible for people who never would have been able to work it into their schedules prior to the development of e-learning. (If you manage a corporate learning program, however, be careful about requesting that workers learn on their own time from home.)

随时随地学习－电子学习者可以在任何地点，通常是任何时间学习培训课程。这种实时（JIT）技术的好处在于――为培训那些在电子学习发展之前，从未把培训计划塞入日程的员工提供了可能。（但是，如果你在管理公司的培训项目，注意要求员工必须在家中安排时间学习。）

It can be updated easily and quickly - Online e-learning sessions are especially easy to keep up-to-date because the updated materials are simply uploaded to a server. CD-ROM-based programs may be slightly more expensive to update and distribute, but still come out cheaper than reprinting manuals and retraining instructors.

升级简单而且迅速－在线电子学习的课程非常容易进行更新，因为需要更新的学习材料仅仅是上传到服务器上就可以了。基于光盘的课程的更新和分发可能要稍微贵些，但是仍然比重新印制学习材料以及重新培训教师要便宜。

It can lead to increased retention and a stronger grasp on the subject - This is because of the many elements that are combined in e-learning to reinforce the message, such as video, audio, quizzes, interaction, etc. There is also the ability to revisit or replay sections of the training that might not have been clear the first time around. Try that in a crowded auditorium!

改善知识记忆并更深刻的掌握授课内容－这是因为人们在电子学习中综合了很多元素例如视频，音频，测验，互动等，来巩固学习内容的记忆。对于一些学生在第一次学习时并不理解的内容，电子学习也具有重新回顾和重播这些培训内容的能力。在一个拥挤不堪的大教室中尝试下！

It can be easily managed for large groups of students - Trainersoft Manager allows corporate training directors, HR managers and others to keep track of the course offerings, schedule or assign training for employees and track their progress and results. Managers can review a student‘s scores and identify any areas that need additional training.

轻松管理大批学生－Trainersoft Manager允许公司培训主管，HR经理以及其他人了解授课情况，员工的上课日程或者培训布置情况，以及追踪他们的进展与培训效果。经理们可以查看一个学生的分数，并且确定任何他需要进行额外培训的部分。

There are many advantages to e-learning, and even the potential disadvantages (i.e. boring text-based courses, technophobia, loneliness) can be alleviated with a properly designed course. Let‘s move on now to how to plan a good course.

电子学习有许多优势，我们甚至可以利用一门设计合理的课程来减轻电子学习潜在的不足（例如，枯燥无味的基于教科书的课程，技术恐惧，孤独）。现在，让我们接下来讨论如何规划一门优秀的课程。

5.Planning Your Course

5．规划你的课程

The most important step in building any training program is planning. This means rebuilding existing materials for a cyber-landscape. The worst experience anyone can encounter in an e-learning environment is finding traditional written training materials simply moved to the computer screen. Talk about a high snooze-factor! And this is not only boring -- it‘s ineffective training and a waste of time for pretty much everyone involved. What Trainersoft focuses on is easily incorporating multimedia and interactive elements into every training program.

在开发任何培训课程的过程中，最重要的一步就是规划。这意味着为了在网络空间使用而重新编排现有的教学材料。在电子学习环境下，任何人可能遇到的最糟糕的经历莫过于发现课程设计者只是简单地把传统的手写培训材料放到了电脑屏幕上。让我们来讨论这个超级让人打瞌睡的因素！这不仅很枯燥――而且对所涉及的任何人而言，都是无效的培训和对时间的浪费。Trainersoft关注的是将多媒体以及互动要素轻松地融入到每一个培训课程中去。

The first steps...

最初的几步……

Before anything is put on paper, the audience for the training has to be determined. Once you know who you‘re talking to and what their skill levels are, you can then begin the long task of actually putting the training program together.

在开始筹备之前，我们要确定培训的主体是谁。一旦你清楚了你将要给谁上课，并且了解了他们的技术水平之后，你就可以开始执行将培训课程整合起来这一漫长的任务。

Next, you have to know what that audience should be able to do once the course is over that they couldn‘t do before. In other words, what are the objectives of the course? Working backward from your objectives will keep you on track. Also, make sure the audience knows those objectives right from the beginning. The "What‘s in it for me?" factor plays a role in training just as it does in many other areas of life and business. This is especially true for e-learning because leaving the class isn‘t the attention-drawing act of getting up and leaving a group, which tends to create a pause in the lecture and stares by fellow students. It‘s a simple mouse click.

接下来，你必须了解一旦课程结束之后，你的学生应该能做哪些他们之前不会做的事。换句话说，这一课程的目标是什么？从目标出发有助于你明确课程设计的方向。同样，确保让你的学生一开始就了解课程的目标。与生活和生意场上的其他领域一样，“这里有哪些对我有用的东西”这一因素在培训中起了关键的作用。对电子学习来说这尤为正确，因为离开课堂不再是一种站起来离开小组的吸引学生注意力的行为，在传统教学中，这种行为会暂停教学，并使其他学生盯着那个离开的学生。而在电子学习中，退出课程仅仅是简单的鼠标点击行为。

The program should be designed with the delivery method in mind (i.e. Web-based, CD-ROM-based, Network-based) as well as the limitations of the users‘ hardware. (Again, know the audience.) Bandwidth will play a big part in the acceptance and success of a multimedia program on the Internet.

我们在设计课程时要考虑到课程传送方法（例如，基于网页的，基于光盘的，基于网络的）以及用户硬件的局限性。（再次提醒，要了解你的用户。）在使用户接受基于互联网的多媒体课程，并使其获得成功的这些方面，网络带宽起了非常大的作用。

Organize, organize, organize

组织，组织，组织

Break your content up into manageable chunks that are meaningful to your objectives.

将你的教学内容分成易于处理的小块，这对你的目标的实现非常有意义。

Trainersoft‘s authoring tool allows you to organize your program into books, chapters and then pages within those chapters. This establishes a very clean and simple way to keep your content broken into the manageable "chunks" you need, as well as arrange those chunks within the overall program. The better organized your materials, the easier it will be for the student to navigate. Keep in mind that each module shouldn‘t exceed about 20 minutes. This equals about one hour of classroom-based training.

Trainersoft的编辑工具可以让你将课程组织成书，章节的形式，并且可以在这些章节中添加页面。这就形成了一种非常简洁的方式来将你的内容划分成你所需要的易于处理的小块，并且可以将这些小块内容安排到整个课程中去。你将课程内容组织得越好，你的学生就越容易理解课程的框架。记住每一个模块的长度都不应该超过20分钟。这相当于1个小时传统课堂教学的培训量。

Navigation is another critical element of e-learning. Difficult navigation creates frustration and often encourages the student to leave the course (remember that "one click" escape). Setting up the navigation and look of the program is an important step and shouldn‘t be done without a lot of thought and testing. Trainersoft provides a template-based solution that includes the basic built-in navigation tools, but also allows you to customize or create your own navigation controls.

导航是电子学习中的另一个重要元素。困难的导航系统会引起学生的挫折感，并经常促使他们结束课程（记住“点击一下”退出）。建立导航系统并纵览整个课程是很重要的一步，并且在没有经过大量的思考和测试之后，不应该做这一步。Trainersoft提供了一种基于模板的解决方案，其中包括基本的内置导航工具，但是这一方案仍然允许你自定义或者创建你自己的导航控制系统。

Storyboarding

情节串联图板

One method for organizing your materials, particularly if you plan to include any games, is to create a storyboard of the complete program. Creating a storyboard involves simply drawing blocks on a page that represent the frames (pages/screens) of your course. This will help you visualize the sections of your program and identify kinks in the flow. Do this before you begin committing text to computer.

还有一种方法可以用来组织你的教学内容，尤其是当你计划在课程中包含一些游戏时，这种方法就是建立一块整个课程的情节串联图板。创建一个情节串联图板包括简单地在一个页面上画出几块表示你的课程框架（页面/屏幕）的内容。这将会帮助你将课程的各个部分形象化，并且确定这一课程的操作指南。在你准备开始往电脑中添加文本之前，先做情节串联图板。

If you don‘t think a storyboard is necessary, at least create a good outline of the material. Any of these steps toward organization will speed up the process once you begin creating the course in its electronic format.

如果你觉得这并不是很有必要，那至少应该做一个清晰的课程内容大纲。一旦你开始创建课程的电子版本，组织过程中的任何一个步骤都将会帮助你尽快完成这一过程。

6.Integrating Media and Interactivity

6.媒体整合和互动

Once you have your outline and storyboard (or at least a cocktail napkin with your plan of attack written on it), begin to think about how to work interaction, animation, video and audio into your program.

一旦你拥有了自己的大纲和情节串联图板（或者至少有一张写满了你的进攻计划的鸡尾酒纸巾），你可以开始考虑如何将互动内容，动画，视频以及音频添加到你的课程中来。

Vary the presentation of information into formats that force different parts of the brain (or actually different neural systems) to go to work and store the information in the form of memory.

将信息以不同形式呈现可以迫使大脑中的不同部分（或者事实上是不同的神经系统）进行工作，并且以记忆的形式存储这些信息。

This can be done, for example, by presenting information in one form (e.g. text on the screen stating a fact), then including an audio or video clip of something related that fact, then using the information to help the student create his or her own visualization of the fact. This last step could come in the form of a quiz that asks questions forcing the student to use reasoning to combine the two facts in order to come up with the correct answer. Or, it could be turned into a game that takes the student through a process that draws into play the two related bits of information.

可以这样做，比如说，通过以一种形式呈现信息（例如，屏幕中的文本来阐明一个事实），然后添加一些与这一事实有关的音频或者视频文件，接下来利用这些信息去帮助学生建立他/她自身对这一事实的形象化的理解。最后一步可以以测试的形式，通过提问使学生进行思考，来将这两种事实结合在一起，从而得出正确的答案。或者，也可采用游戏的形式来让学生经历与这两种相关的信息一起娱乐的过程。

Trainersoft‘s tools were developed specifically to address the idea of creating courses using this infrastructure. This type of process helps the brain weave together those bits of information that were stored in different neural systems for better retention and recall of the information -- in other words, more effective training.

Trainersoft开发了一种特定的工具来处理使用以上基本结构创建课程的问题。这一过程帮助大脑将储存在不同的神经系统中的多种信息交织在一起，这样做是为了更好的保存和回忆这些信息――换句话说，为了更有效的学习。

Incorporating text

添加文本

Text isn‘t necessarily seen as multimedia, but it is an important element in e-learning. The problem with many e-learning programs is that the developers have simply taken their existing text-based teaching and put it on the computer screen. The interactivity of the program consists of reading text and then clicking on an arrow to proceed to the next page. You have to use some text, but you can do it responsibly. Keep it to no more than six lines per screen and intersperse it with other elements. Also, don‘t overdo your text animations.

人们并没有必要将文本视为多媒体，但是它却是电子学习中的一个重要元素。许多电子学习课程都存在着这样的问题：开发者简单地利用现有的以课本为基础的教学内容，并直接把它放到电脑屏幕上去。课程的互动就是阅读文本，然后点击箭头跳转到下一页。你必须要使用一些文本材料，但是得负责任地去做。记住每一屏幕不能超过六行文本，并且在其中添加些其他元素。同时，不要将你的文本动画做得太过火。

Trainersoft allows you to have text appear and disappear, or simply move to another location on the screen, within pre-set time increments or upon a click or rollover of the mouse. Using this type of animation may make more sense in many training instances. For example, you might have an audio clip that ends with a question posed to the student. If the student doesn‘t respond within a set amount of time, text could pop up that gives a hint or instructs the student to do something else.

Trainersoft允许你利用预设的时间间隔、鼠标点击或者鼠标滑动，来显示和隐藏文本，或者简单地将文本移动到屏幕中的另一个位置。在培训环境中使用这种类型的动画可以使内容更清晰易懂。例如，你可能会有一个以提出一个问题为结尾的音频文件。如果学生在既定的时间里不能够回答这个问题，文本就会弹出以给予学生提示或者指导学生去做其他事情。

Trainersoft also includes a function that allows you to index all of the text within the course. This makes it easy for a student to search for specific terms or formulas without having to go back through every screen.

Trainersoft同样拥有允许你为这门课程的所有文本内容编制索引的功能。这为学生搜索特定的术语或公式提供了方便，学生再也不需要后退到每一屏幕来查找相关的内容。

Incorporating audio

添加音频

The power of audio may often be overlooked, but the combination of written and spoken words does have a big impact on recall and retention. To bring audio into your course with Trainersoft simply means dropping the clip onto the screen and setting its controls. The hard part is determining where to use audio, and knowing how much is too much. Audio, just like other media files, requires good bandwidth if you‘re producing a Web-based program. This screen from Trainersoft 7 shows the media controls you can set when incorporating audio into your program.

音频的效果可能常常为人们所忽视，但是将文本和发音相结合会对回忆和记忆信息产生很大的影响。利用Trainersoft将你的音频与课程结合起来仅仅意味着将文件放到屏幕上，然后对它进行设置。困难的地方在于决定在哪里使用音频，并且明白如何合理使用音频。如果你正在制作基于网络的课程，音频，就像其他媒体文件一样，要求有高速的带宽支持。当你准备将音频文件添加到课程中时， Trainersoft7的截屏显示了你可以进行的媒体设置。

Incorporating video

添加视频

A paper by Rachel Ellis and Mark Childs, published in the Journal of Educational Media in 1999, discussed the The Broadnet Project, which was a study on the effectiveness of video as a learning tool in online multimedia modules. Their conclusions and recommendations based on the analysis of comments and perceptions of the trainees and the producers were:

Rachel Ellis和Mark Childs撰写的一篇于1999年在教育媒体刊物上发表的论文讨论了The Broadnet项目，这一项目研究视频文件在作为网络多媒体模块中的一种学习工具时的有效性。在对培训者和开发者的评论和看法进行分析的基础上，他们得出了以下的结论和建议：

Use video stories to put the subject into its context of use.

Use video clips followed by questions to encourage active participation from trainees and build on existing knowledge.

Ensure that these clips have the information required to answer the questions.

Limit the length of talking head video clips and use them to elaborate on specific points.

使用视频故事以此将授课内容置于应用的环境下

使用附有问题的视频剪辑，以此来鼓励学生积极参与，并且巩固已掌握的知识。

确保这些视频剪辑中带有能够回答这些问题的信息

限制授课视频剪辑的长度，应该利用这些剪辑来阐明特定的知识点。

Building interactivity into the experience was also discussed. Having optional endings for scenes that the student can select based on the training they have had so far begins to incorporate some of the gaming aspects we discussed earlier. Students could go through portions of learning material, then begin a video story that they control through selecting actions that create a scenario. Their choices would be graded based on the correct actions.

他们同样也讨论了在视频学习中添加互动这一内容。在视频学习中添加可供选择的结局，而学生们能够以目前为止所学到的内容为基础进行情景选择，这样就可以开始在视频中添加我们之前所讨论过的游戏环节。学生们可以先学习部分课程材料，接着开始观看一段视频故事，在这段故事中，他们可以通过选择不同的行为来创作不同的情节，从而来控制整个故事的进程。老师们会以正确的行为选项为基础对学生所做出的选择进行评分。

For example, going back to our human resources manager example, the interview session could include three different choices for questions. When the student makes a selection, the video then plays out that scenario. They could progress until they chose incorrectly and had to face the consequences.

例如，继续回到我们的人力资源经理的那个例子，面试会谈可以选择三种不同的问题。当学生做出了一个选择之后，视频将会播放这个情节。当他们做出了错误的选择，面试会谈宣告结束，而他们将面对选择的后果。

By relating to characters on the screen and being able to control their "destinies," students can learn from mistakes that would be too costly to make in the real world.

通过与屏幕上的人物进行互动以及控制他们的“命运”这些方式，学生们可以从错误中学习，而在现实社会中，犯这些错误会付出相当大的代价。

Trainersoft supports streaming media, which allows the student to see the video (or hear the audio) immediately. Rather than waiting for the complete file to download, the student hears it as it is "streamed" to his or her computer. This only applies to Web or intranet-based training. There are, however, hybrid possibilities that could include links to the Internet for streaming media or other training media. This might be beneficial if that portion of the training is likely to change and need updates frequently. By putting that portion of the training on the Web, updating the files is easier than recreating and distributing new CD-ROMs.

Trainersoft支持流媒体，这可以让学生立即看到视频（或听到音频）。当音频文件“流向”他们的电脑时，学生便可以立刻听到它，而不是等着全部的文件都下载完毕以后再听。这种技术只能应用与基于网络或企业内部网的培训。但是，我们也可以在互联网上把指向流媒体以及其他培训媒体的链接混合起来。如果部分培训内容很可能发生改变并经常需要更新，使用流媒体技术将非常有益。通过把这一部分培训内容放置在网上，更新这些文件将比重新刻录并且发送新的光碟要容易的多。

Incorporating animation

添加动画

Animated graphic elements are great to use in training. They are fun to watch, and can get a message across that words or audio (or even video in some instances) cannot. Animation is another element, however, that has to be used appropriately. While animations don‘t typically require the bandwidth that video does, they still can slow down a Web-based program.

在培训中应用动画化的图片元素效果十分出色。观看这些动画非常有趣，并且动画可以传达语言，音频（或者甚至在某些情况下视频）所不能传达的信息。但是，动画是另一种必须要恰当使用的元素。尽管通常来说动画不像视频那样对带宽有要求，但是他们仍然可以延缓基于网络的课程的进度。

Trainersoft provides some tools to aid in creating animations and even some video. SmartCap is a Trainersoft tool that can be used in software or other computer-screen-type training. It can capture a series of screen movements and export those movements to a video. For example, you could show how to select a specific menu, select the menu item, enter specific information and then see the effects on the screen. Each step, or action, is actually an image that would be converted into an animated video.

Trainersoft提供了一些工具帮助我们创建动画甚至一些视频。SmartCap是Trainersoft的一种能够在软件或者其他电脑屏幕类型培训中使用的工具，它可以捕捉一系列的屏幕动作并且将这些动作输出为视频。比如，你可能需要显示如何选择一个特定的菜单，如何选择菜单选项，如何输入特定信息以及接着观看屏幕中的效果。每一步，或者动作，都是一张可以随后转化为动画视频的图片。

Click here to view an example of a video created with SmartCap. The example will open a second window in your browser. To return to this article close the example window.

点击此处来观看一个由SmartCap创建的视频的例子。这一例子将会在你的浏览器上打开第二个窗口。你可以关闭示例窗口来回到这篇文章。

You can animate almost any graphic image or text you put on the page. This can include buttons that play specific sounds when clicked, or even that change to another image when the mouse moves over them. This is known as a rollover. You‘ve probably seen this type of effect on Web pages. Rollovers can actually do more than just alter an image -- they can bring in another path or choice for the student.

你几乎可以将任何放在页面上的图片或者文本动画化。这些动画可以包括一点击就会播放特定声音的按钮，或甚至是当鼠标移动到图片上，原图片变成另一幅图片的特效。这就是我们所了解的鼠标滑动效果。你可能在网页上看到过这种类型的特效。确实，鼠标滑动能够实现的效果不仅仅是改变一张图片――它们可以为学生提供另一条路径或者选项。

For example, suppose you‘re creating a game that requires the student to enter an office, find a specific document, then proceed to use the information within that document to perform some action. You can begin with a background photo of an office. Within the photo you could have several "hot spots" that have rollover effects. By moving the mouse over the file cabinet, the student might find a file he or she needs in order to proceed. The student can then click on that file, which would take him or her to the next screen, which shows them the information in the file. By mousing over (or clicking) on something within that information, the student might find the key needed to move to the next step of the game.

The possibilities for animations and interactivity are only limited by your imagination.

例如，假设你现在要创建一个游戏，这个游戏要求学生进入一间办公室，找到特定的文件，接着利用文件中的信息来采取一些行动。你可以以一间办公室的图片作为背景开始这个动画。在这张图片中，你可以拥有几个具有鼠标翻转效果的“热点”。通过在文件柜周围移动鼠标，学生可以找到他/她为了继续这一游戏所需要的文件。接下来，学生可以点击这份文件，这可以带着他/她到下一个屏幕，这一屏幕上显示了文件的信息。通过鼠标移动（或点击）这些信息中的一些内容，学生可以发现进入游戏下一阶段所需要的关键要素。

动画和互动性的可能性只会被你的想象力所限制。

Incorporating quizzes and tests

添加问题和测试

Interspersing the course with quizzes that pop up after material has been presented offers good feedback and reinforcement for learning. In most learning situations, the more immediate the feedback, the better -- it‘s the building effect of learning.

在课程中插入些当学习内容显示完毕之后弹出的问题可以提供良好的反馈，并且巩固学生所学习的内容。在大多数学习情况下，反馈越及时，学习的巩固效果就越好。

Inserting questions and quizzes using Trainersoft amounts to selecting "Question" from the "Insert" menu and then deciding what type of question you want it to be. Inserting multiple choice, multiple-multiple choice, true-or-false, matching or fill-in-the-blank questions is simple, and feedback can be given immediately after the question is answered. The feedback can be in the form of an audio response or text response.

使用Trainersoft插入问题和小测验相当于在“插入”菜单中选择“问题”，然后决定你想要哪种类型的问题。在课程中插入单项选择，多项选择，是非，匹配或者填空题十分简单，并且在学生问题回答完毕之后，屏幕中立刻会出现反馈信息。反馈信息可以采用语音回复或者文本回复的形式。

The answers to these questions can be tracked and used to compute the student‘s final score and grade for the course. As a course administrator, you can look back and see any areas that caused difficulty and reassign those areas for additional training.

我们可以追踪学生回答问题的情况，并且利用它们来计算学生这门课程的总分，并为他们评定等级。作为一门课程的管理者，你可以回顾和查看任何使学生感到困难的地方，并在另外的培训中，重新布置这些内容。

7.Some Final Tips

7.一些最后的提示

Here are some highlights of what we‘ve discussed in this workshop, along with some additional notes and guidelines for developing your online learning adventures.

这里有一些我们在研讨班中已经讨论过的精华内容，以及一些有助于开拓你的在线学习之旅的另外一些注意点和建议。

Technology requirements - Don‘t forget to investigate the hardware, software and bandwidth your audience uses before you begin planning and developing your program.

技术要求－在你开始规划和开发课程之前，不要忘了调查你的学生使用的硬件，软件和带宽情况

Page file size - Keep your pages to 40 kilobytes or less for online Web training. The magic number appears to be about 15 seconds for the maximum time users will wait for a page to load.

页面文件大小－在网络学习中，将你的页面大小保持在40KB或者以下。15秒是使用者等待一张页面下载完毕的最长时间。

Course navigation - Make sure your navigation tools are intuitive. Include links to "help," an online community, and glossaries or other references.

课程导航－确保你的导航工具是符合人们认知习惯的。其中需要包括指向“帮助”，一个在线社区，以及词汇表或者其他参考资料的链接。

Modules - Make sure your course is broken down into manageable sections that the student can get through in 20 minutes or less.

模块－确保你的课程可以分解为易于处理的小块，学生能够花20或者少于20分钟的时间来学习这些小块内容。

Fonts - Keep your fonts simple. TIP: San serif fonts like Arial and Helvetica are easier to read on screen. Also, remember that the font you choose must be on the user‘s computer system or a substitute font will be used. This can cause some changes to your text layouts that could affect the clarity of the message. Arial is a very common font that will probably be available to almost everyone.

字体－使用简单的字体。建议：像Arial和Helvetica这些没有衬线的字体在屏幕上阅读更为方便。而且记住你选择的字体必须同样安装在使用者的计算机系统中，或者可以使用另一种字体来代替。但这会给你的文字排版带来些变化，从而可能影响信息的明确性。Arial是一种非常普遍的字体，这种字体几乎适合于每一个人。

Colors - Make sure you use contrasting colors for backgrounds and fonts. Overusing complex coloring such as gradients may also slow the program down.

颜色－确保在背景和字体中使用对比色。过度使用复杂的颜色比如渐变色会延缓整个课程的进度。

Quality - Keep the quality of your graphics, videos and audio at a consistent level.

质量－确保你的图片，视频以及音频的质量在同一水平上。

Text - Keep your text to no more than six lines per screen.

文本－确保在每一屏幕上你的文本显示不超过6行。

Interaction - Remember to involve the student through the use of interactive elements, but make sure the action builds the message rather than detracts from it.

互动－记住通过使用互动元素来使你的学生参与到课程中来，但是要确保这些行为能够巩固知识而不是让学生分心。

Patterned teaching - Remember to work varied aspects, examples and related facts into the content of the course to keep those neural systems on their toes.

模式教学－记住将各种观点，例子和相关的事实与课程的内容结合在一起，以此来让那些神经系统保持警觉。

Feedback - Make sure feedback is given after each quiz section.

反馈－确保在每一个提问环节之后，都给予学生反馈

Multimedia - Don‘t use media simply for the sake of using it. Make sure it applies to the training in a logical manner and reinforces the information.

多媒体－不要仅仅是为了用多媒体而用多媒体。确保以一种合理的方式将它应用到培训中来，并让它巩固学生所学到的知识。

Blended learning environments - If you‘re having a hard time with the idea of completely trashing your classroom training environment, remember you can always combine e-learning with the more traditional methods you‘re more accustomed to. This blended environment can also be an effective way to provide training, and might have better initial acceptance.

混合学习环境－如果你觉得自己很难适应完全抛弃课堂学习环境这个观点，记住你总可以将电子学习和你更为习惯的更为传统的教学方法结合在一起。这种混合环境也是一种有效的提供培训的方法，并且具有更好的初期接受性。

8.Lots More Information

8．更多的信息

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American Society of Training and Development

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Games 2 Train: Digital Game-Based Learning