

Answering Big Questions When Transitioning to elearning

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Introduction

Elearning is the business of making content accessible to wider audiences and at greater convenience than previously experienced. It is possible to repackage learning materials that at one time were only available in the classroom for an entirely new audience or an existing audience in a more convenient format.

On the surface, the idea of repurposing content into on-demand format may appear as an obvious decision to an elearning specialist. When that person, however, faces bringing the concept of online training to a business environment unaccustomed to the format, the process can become time consuming, tedious, and potentially costly.

There will be barriers to overcome and questions to answer. People may even know the movement towards online learning is inevitable, but they will likely have concerns about quality and access especially when they themselves do not have all of the information available.

Let us presume that you are in such a position. You will face many different questions. Where do you begin? How do you ensure the effectiveness of training? What technology do we need to have in place? What practices will you follow in content creation and what types of tools will you use to create it? How will you address content accessibility?

This article will answer those questions and more in an effort to give a roadmap to individuals who are facing this situation. We start by establishing some methods to prepare the organization for the upcoming change and gaining buy-in from the right people. Then we review some best practices when it comes to content creation. Finally, we present information on ensuring that your content meets necessary standards and accessibility requirements.

I. Change Management: How to Effectively Lead an eLearning Transition

Once you have made the decision to adopt an online learning presence, you must determine an effective way to manage this change within your organization. It is not an overnight process and to achieve success you will need help from a variety of sources.

Gaining Leadership Commitment

Like many decisions, it takes having the right people say "yes" before any project can gain acceptance and adoption. Just getting the green light from the bosses cannot be the end of their involvement. There needs to be an institutional vision and a commitment from a wide variety of leaders to make this change a reality and it will require resources and support that can only come from the top.

“Change needs to be led from the top. Senior leadership must set and communicate the vision for the organization, including a compelling case for change. It needs to reach a practical understanding of what can be leveraged in the existing culture and what needs to change” (Bordia, Kronenberg, and Neely, 2005, p. 8)

Here are six suggested steps to gain buy-in from leadership.

- 1. Explain the business drivers**

Why are you recommending this change to the company? There could be any number of reasons. Are you trying to develop standardized programs across a large organization? Is there a new process that you need to train broadly and quickly? A common mistake is to jump directly into the details rather than take the approach to position eLearning as a strategic initiative. For the leaders you need to impress, they need to see how this will tie directly into business decisions they are making. Missing this step could result in your initiative under supported or not surviving for the long term.

- 2. Involve all stakeholders in the planning process**

Who are the people that may be most impacted by this decision? Have you consulted them? Will they be part of the decision making process? It is crucial to employ the input of those currently handling training whether they are official trainers or other managers responsible for training their staff. These individuals may be the most likely to oppose something that is outside of their comfort zone. (K-12 Blueprint, 2013, p 11)

- 3. Build your case**

Can you back up your position with success stories? For example, have you looked into other companies within your industry to see how they train on similar topics? (Merugu,

2011)

4. **Paint a “Day in the Life...” picture**

Give them an idea of what training will look like in one year, three years, five years. Explain the culture of learning you plan to create. Help them visualize the benefits by making this change.

5. **Have a tentative roadmap**

Throughout your research you should begin to piece together a rollout plan and timetable. How long will the process take? When do you need to make key decisions? What type of technology is needed (LMS, software, etc.)? (Merugu, 2011) Again, however, do not go into too much detail. Give them enough so there are no big surprises later.

6. **Include criteria to evaluate the program.**

It is important to show you expect this process to undergo scrutiny, and, like any new strategy, adjustments will occur as new information is gathered. (K-12 Blueprint, 2013, p. 11)

Overcoming Resistance and Barriers

When managing any kind of organizational change, regardless of how large or small, you have to assume that many people will not view this change in a positive light. It is important to approach any change carefully and ensure you allot the proper planning and development time before moving forward.

You may be thoroughly convinced the move is necessary and perhaps inevitable, but others, including senior leaders may not share that same conviction. Moving to an online learning environment may elicit a wide range of responses and not all of them will be positive.

Here are a few suggestions to keep you from facing disappointment.

1. **Be realistic about your expectations**

Not everyone is going to be as convinced as you. For some people, you may need to continue to sell the program even after you get the green light. Do not let that deter your own enthusiasm? (Merugu, 2011).

2. **Understand and anticipate the reasons behind their resistance**

For some people, even the term “eLearning” can seem like a foreign language. For some, the technological aspects will cause them to back away from idea. Others may believe that elearning can never replace classroom learning because they feel it is missing a human connection. Perhaps the costs involved are the main thing holding them back. To find out this information, you may have to seek it out actively. Not everyone will be as forthcoming as others will with their specific concerns.

3. **Address their concerns and present benefits**

By taking their concerns seriously, you show them that you are committed to their involvement. You cannot afford to have people turn away before things even get off the ground. If you anticipate correctly, it is possible to have ready-made answers to their issues.

Building Your Team

Nothing succeeds in a vacuum. You can create all the elearning plans in the world, but if no one is there to create the content or communicate the plans, the initiative is doomed to fail.

Depending on the size of your organization, you will need to select a team to assist with the transition. To build a healthy team it is important to enlist the support of key players who bring a variety of backgrounds, viewpoints and skills.

Here are some examples of types of people and groups to think about including on your planning and rollout team.

- 1. In Your Corner**

Of course, you should include motivated people who are already on in your corner. They will likely be willing to help you fight battles along the way.

- 2. The Opposition**

On the other hand, you should enlist a few team members that still need to be fully convinced. Your team will benefit from having to face tough questions in a planning meeting rather than during a presentation to upper management.

- 3. Target Audience**

It is critical that you include your target audience as part of the development process. If the majority of courses are going to be targeted at a specific group, you will need their input (and buy-in) throughout the planning stages.

- 4. Untapped Talent**

Seek out people within your organization based on skills that you think you will need regardless of their position within the company. Look for people with writing skills, good presenters to help sell the initiative, graphic artists, programming skills or people that may become subject matter experts (The eLearning Guild, 2014, p 19).

- 5. Motivated Learners**

You may find your talent search does not reveal enough people or the right people. In that case, be on the lookout for those who are willing to stretch their knowledge and learn new skills. There are numerous ways to learn about eLearning techniques including Lynda.com, YouTube, or the Khan Academy.

As you develop your roll out plan, it is often useful to have something to show your stakeholders at every meeting. By revealing plans over the course of the project timeline, you

are able to manage input throughout as opposed to having to deal with feedback after you have “unveiled your masterpiece”. This also helps to build ownership in those you are presenting to because they feel as though they have played a role in the development process (The eLearning Guild, 2014, p 16).

Preparing Your Infrastructure

Making the decision to move to eLearning requires more than hooking up laptops in a lab or taking existing PowerPoint presentations and putting them online. The starting point for every organization is different, but here are few things to consider.

1. **Review your existing technological resources**

Will you be using a dedicated computer-training lab or will eLearning be on office computers or mobile devices? Are your internet browsers up to date?

2. **Tracking the learning**

Will you be using a Learning Management System? Will the content simply be available on your intranet?

3. **Content**

Are you buying off the shelf content from a provider like [FranklinCovey](#)? Will you be contracting a company to create customized courses? Will you be creating the content in-house? What software will you use? Regardless of the answer, you will need funding.

4. **Do you have a technical support team?**

Inevitably there will technical issues for some users. Do you have people or a system in place to handle support calls?

II. Content Creation - How to Get the Most From Available Tools

Once you have buy-in, a team, and your infrastructure is in place, it is time to turn your attention to content creation. Many available sources describe best practices in content creation. From print books to blog posts, it seems that most elearning professionals have something to say on the matter.

Design Principles

One thing that virtually all of them seem to agree that Richard Mayer and Ruth Clark's *e-Learning and the Science of Instruction* (2011), is the definitive source of research based practices of e-learning design. Though originally published over a decade ago it is still

frequently cited today. Their book covers seven design principles: multimedia, contiguity, modality, redundancy, coherence, personalization, and practice opportunities.

The Multimedia Principle states simply that learners get more from words and graphics than from words alone. Any person that has had to sit through a “Death by PowerPoint” style presentation, in which the presenter simply reads the text on the slides, can verify this principle. In this principle the term graphics includes *static* illustrations such as drawings, charts, graphs, maps, or photos, and *dynamic* graphics such as animation or video (R. Clark, 2011).

Best Practice: Combine your words, whether written or audio, with graphics

The Contiguity Principle: Align words to corresponding graphics. This principle describes the relationship between the words and graphics used. It is important to make sure the learner can perceive both elements at the same time. This is true with both printed text and audio recordings. Printed or on screen text is most effective when directly next to the corresponding graphic, and audible words are most effective if played while the graphic is visible. You must make special considerations with this principle in cases of scrolling pages and small screens. In mobile learning, where screens are likely to be smallest using popup text or caption labels (Levert, 2006). Another application of this principle is to keep feedback on the same page as the exercise or question the learner is answering.

Best Practice: Make sure that graphics and text will be perceived together

The Modality Principle describes the fact that people learn more when presented with audio rather than printed or on screen text. There may be obstacles to implementing this principle including hardware needs and file sizes, but substantial learning gains are made when this principle is followed (R. Clark, 2011).

Best Practice: Present the words of your content in audio format whenever possible

The Redundancy Principle calls for eliminating redundant information in various formats simultaneously (Levert, 2006). Studies have shown that relaying information with both on screen text and audio concurrently learning decreases. Think of all the lectures you have attended where the presenter reads the slides to the audience. How engaged were you?

Best Practice: Explain visuals with words in audio or text, not both

Less is more. Clark and Mayer (2011) state, “Perhaps our single most important recommendation is to keep the lesson uncluttered. In short, according to the Coherence Principle, you should avoid adding any material that does not support the instructional goal.” Coherence dictates that only information related to the learning goals should be included in the lesson. No extra pictures to spice up the lecture, not even of your dog, not even if it's cute. Avoid adding background music and environmental sounds; they only serve to distract the learner from the material. In content creation, every element of the content should be

consistent with the learning objectives. When it comes to design, consistency is one of the absolutes (Eelen, 2013).

Best Practice: Keep everything on topic

The Personalization Principle calls for a conversational style in texts and audio narrations. Research found that learners learn better, when the content is conversational, without being overly friendly, rather than when it is delivered with a formal approach. Personalization "...induces learners to engage with the computer as a social conversational partner..." (R. Clark, 2011).

Best Practice: Use conversational language, while not being overly friendly

The Segmenting Principle: Break a continuous lesson into bite sized chunks. This principle tells us that the more complex a subject the more small, simple pieces it should be delivered in. This is true for both in person and distance presentations. This does not mean that we "dumb down" or leave out information, It means that in our content creation we must remain aware of the complexity of what we are trying to deliver and break it into easily digestible chunks. Albert Einstein said, "If you cannot explain something simply, you do not understand it well enough."

Best Practice: Break material into simple pieces

The Pre-training Principle states instructors should give the core concepts and vocabulary of a complex lesson first, rather than introduced as the lesson progresses. Teachers often refer to this as technique as "overview, view, review".

Best Practice: Overview, View, Review

The Principle of Practice states that interaction increases learning. Including questions, quizzes, and learning activities will support the learning process. "Frequent, distributed, problem-solving, job-context practice improves learning and transfer" (Otto, 2014)

Both in person and in distance, both synchronous and asynchronous, using these best practices in your content creation will make for better learning outcomes. To create content based on these best practices, you will need development tools. A list of development tools is included in the appendix of this document. It is essential for elearning professionals to understand the licensing available for the development tools selected. You will likely have to sell the product to the organization's leadership and justify the expense.

Understand Software Licensing & Terms of Service

E-learning professionals frequently recommend desktop, web based and software-as-a-service products to support their organization's development and deployment of learning materials. It is important to have a basic understanding of some of the legal terms in the terms and conditions. You need to be familiar with several licensing clauses:

Limitation of Liability

This clause defines to what extent the software manufacturer is liable for any damages. Typically, these limit their liability to a maximum dollar amount or nothing.

Indemnification

This clause defines who indemnifies who, to what extent and under what conditions. Some software terms and conditions include language that the purchaser agrees to indemnify the provider against all third party claims resulting from their use of the software. This is a one-sided agreement. If your organization is sued for patent infringement for its use of the software, it may be costly.

There are companies termed patent trolls that make no products but control large patent portfolios and generate income by suing for patent infringement. Often it is cheaper for an organization to pay a hefty license fee than litigate, even if the patent troll's claim is questionable.

Governing law

Which state or country's laws govern the contract? Increasingly, new companies are developing software outside the US and use the laws of their home country. For example, the eLearning development software company Raptivity's terms and conditions states "The terms and conditions under this License Agreement are subject to the jurisdiction of courts in Pune (India)." Is your organization willing to litigate under the laws of a foreign country and to travel there for litigation purposes?

These legal clauses are not necessarily a reason to avoid one software package or another. Understand what you are asking your company to agree to. While legal expertise is not required, it is good to be able to review these and recognize any red flags. Point out any potentially objectionable language to your supervisor and legal team.

If the terms are not acceptable, is there another product that will meet the needs and have more acceptable terms and conditions? Some companies are willing to negotiate terms if the sale is large enough. If no other suitable product exists and negotiating terms is not possible, you can prepare a business risk analysis analyzing risks vs rewards for management review.

Be sure to include a review of software terms and conditions in your standard procedures document. This can be especially important for the purchase of expensive software systems such as LMSs. While legal aspects may not seem the domain of the eLearning professional, think about it as understanding the business side of eLearning. It is better to be aware of these issues

during the purchasing process than to deal with fallout afterward. Demonstrate your understanding of the business side of elearning to your management.

There are several different types of software licenses each with its own set of rules. The section below introduces the licensing options that you may encounter. There are two main categories of licenses, single user and multi-user, each with several types.

Individual (Single-user)

This license type allows you to install a program on one computer not accessed by other users over a network. The software is for use on a single computer, and other users will not be able to access or run the software while connected to your computer. Types of individual licenses are:

- **Perpetual license:** allows the customer to install and use the software indefinitely.
- **Subscription license:** Allows use of the software for a specified time.
- **Freeware license:** does not require paying any fee for use.
- **Shareware license:** This is a license to use software for a trial period and then, if you continue to use the software, you must pay a shareware fee or cease using the software.

Multi-user licensing

Multi user licensing generally involves a minimum purchase with an offer of better pricing in return. There are two main types of multi-user licenses:

- **Volume licenses:** allows the Licensee to install the software on a certain number of computers.
- **Site/Enterprise:** This license provides access to software at a single location.

Whatever type of licensing works best for you and your organization, it will also be necessary for the elearning professional to be up to date on the changes in the software that is available.

Trends in Software

There are many trends in the learning software industry. Some of them are game changers, some we will have to wait and see. One thing that is certain, any technology based education professional will have to make a special effort to remain current. The trends discussed here include the movement of development tools to software as service model, the growth of HTML5, the Tin Can API and gamification. All of these are going to influence the course of technology in education.

SaaS/Cloud Solutions

More development tools are moving to the “software as service model”. Adobe has the creative cloud, Lectora offers Lectora Online, and Articulate Online “makes managing e-learning easy”. Some of these companies plan to discontinue their desktop offerings and only offer SaaS solutions. A comparison of On-site and SaaS solutions, intended to show the advantages of the SaaS model:

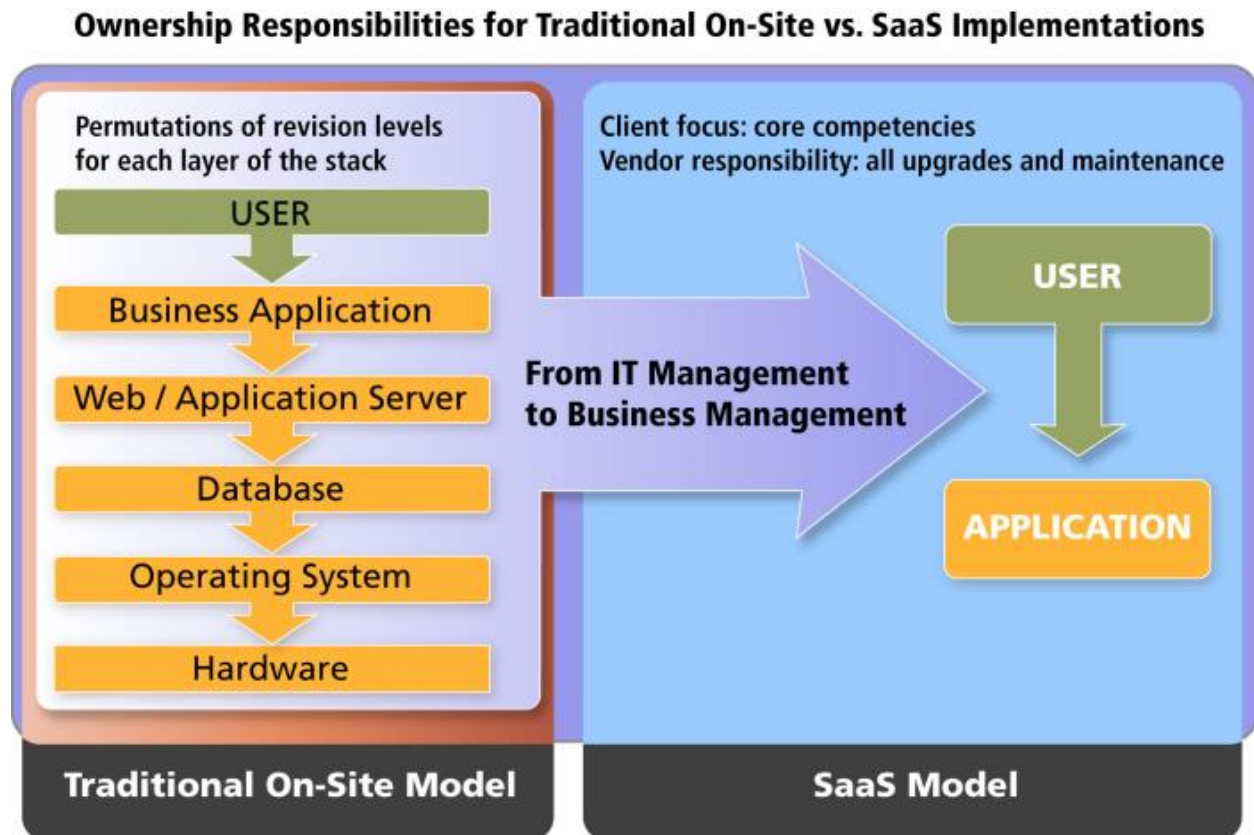


Image Credit: <http://www.crbuyer.com/story/58774.html?welcome=1209933243>

SaaS and cloud models require a subscription rather than purchase. These development tool subscriptions range in price from \$50-\$500 a month and allow users to forget about updates and hardware requirements. With SaaS and cloud solutions, users can access projects from anywhere with an internet connection and from almost any equipment. Often a good choice for business, the SaaS model also allows for the maintenance of software without an IT department and greater scalability. It is far easier to upgrade a monthly subscription than to add in house server capacity and purchase additional licenses. On the other side, monthly subscription fees add up quickly. If you choose not to renew your subscription you can lose the ability to edit your files, so it is best to be sure that your summative and formative evaluations

are complete and you are satisfied with the content's final form. Security is often a primary concern for SaaS users, trusting a third party with all your sensitive data can be a challenge. There are also legal concerns about data protection. Making certain that the SaaS provider is following all the compliance regulations pertinent to you takes time and money.

HTML5

HTML5, the latest iteration of internet markup language has been gaining momentum steadily, and most expect its adoption to accelerate. By all accounts, HTML5 is going to continue to be widely embraced and its capabilities will grow as well (including APIs) (Strahsburg, 2013). An indicator of the trending of HTML5 is related job growth, as indicated in the following image.

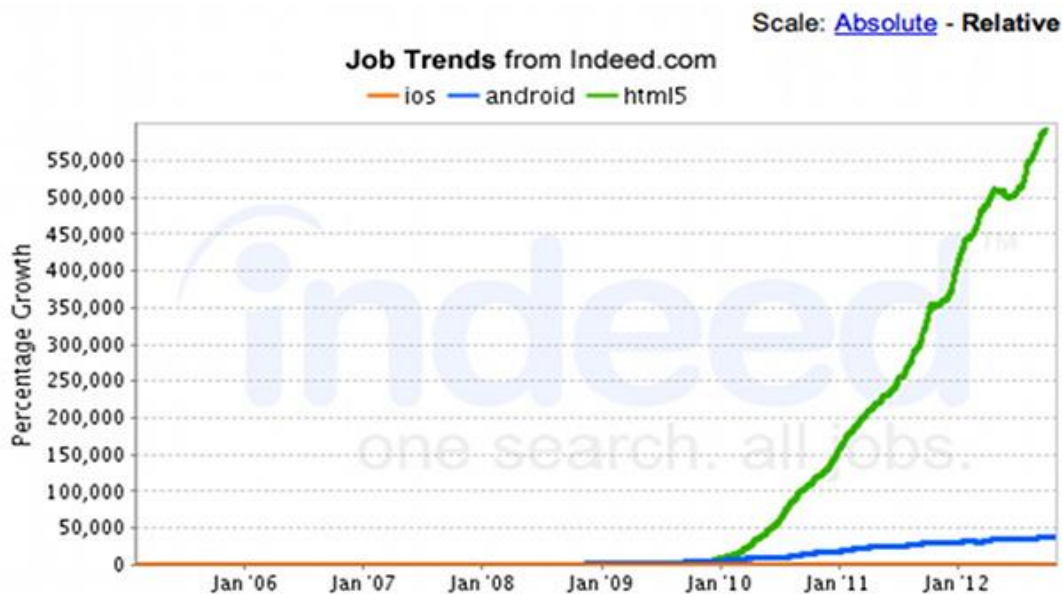


Image Credit: indeed.com

HTML5 has allowed for a reduction in the use of proprietary web plug-ins like Adobe Flash and Microsoft Silverlight, creating a web accessible by more devices. Not all of the news about HTML5 is good however; it has been showing performance issues in its internet applications. In 2012, Facebook switched its iOS app from HTML5 back to Objective-C, citing performance issues. According to a 2014 report by the International Data Corporation (IDC), "It is fair to say that HTML5 as a set of technologies has not yet met its expectations as a development and target deployment platform for mobile applications." While this technology will continue to grow and improve, it is possible that the early claims of its success were exaggerated, and our expectations too high. "HTML5 has a strong premise and many strengths. However, no

technology can meet the unifying expectations placed on HTML5 in this age of rapidly proliferating device capabilities," said Al Hilwa, research director, Application Development Software at IDC. As for the future, the IDC report predicts that HTML5 and native mobile applications will coexist, with native applications remaining the primary delivery method for mobile apps. One of the reasons cited for this is a lack of skilled developers, "IDC does not expect an adequate [HTML5] developer skill set to evolve until the 2016 timeframe."

Tin Can API

While SCORM (Sharable Content Object Reference Model) is the most widely used e-learning standard, the makers of the Tin Can API think that SCORM does not capture the entire picture of elearning. The website tincanapi.com states that, "Learning is happening everywhere, not just in traditional SCORM courses inside traditional LMSs." and "The Tin Can API (sometimes known as the Experience API or xAPI) is a brand new specification for learning technology that makes it possible to collect data about the wide range of experiences a person has (online and offline). This API captures data in a consistent format about a person or group's activities from many technologies." With this API, it is possible for learners to maintain personal data lockers; their learning records can follow them to new organizations. Ben Strahsburg (2013), states that the [Tin Can API] includes many more capabilities than SCORM. With the Tin Can API, trainers can track and record different types of learning. It is likely that with the rise of mlearning, there will be a rising need for a new way to track learning participation.

Gamification

In the near future Strausberg (2013) says we can

"Expect to hear a great deal more about gaming or what's better known as gamification. It refers to the use of game mechanics as well as various game design techniques in a non-gaming environment – whether that's in schools, businesses or other settings. Part of the debate centers on learners' interest, but the approach appears to be gaining acceptance."

While the gaming community tends to be critical of gamification, arguing that the addition of a point system and achievements does not suddenly make work fun, the trend has taken hold in business and education and does not seem to be letting go. From business products like the Zurmo CRM system, which aims to be the best CRM available to the AccordLMS, which advertises gamification support as one of its key features, it seems clear that there will be more fun in learning. Zurmo has the mission "to make the system intuitive, easy to understand, natural, (and dare we say fun?). Gaming mechanics, training and guidance should be embedded in the application so people can accomplish their goals effectively." "Gamification is becoming a common buzzword in business these days. In its November 2012 press release,

Gartner predicts that "by 2015, 40% of Global 1000 organizations will use gamification as the primary mechanism to transform business operations" (Kumar, 2013).

The field of education is changing rapidly by technology. Keeping pace with current developments will take constant attention from the elearning professional. Such rapid change can also have an impact on content quality. The more the pace of change accelerates, and the more new tools become available, the more the elearning professional will have to have quality standards as a guide to development and accessibility.

III. Setting Standards: How to Preserve the Quality of Your Content

Consistency, quality and maintainability depend on having internal standards. In some cases, international standards are available that can be adopted into your internal standards documents. Standards and practices help reduce errors and the need to rework materials. This can use up valuable time and resources. It is critical to implement a complete and reasonable set of standards and ensure that all e-Learning team members follow the standards.

Embrace Standards

The World [Wide Web Consortium](#) (W3C) is an international community dedicated to the development of web standards. They have developed standards for [HTML](#), [CSS](#) and web accessibility. The W3C lists these reasons adhere to the standard and validate web pages:

- Validation helps prevent a buggy web page
- Standards compliant pages are more likely to work with future web technology
- Web pages that comply with a universal standard are easier to maintain
- Validation helps teach good coding practices
- Validation of compliance is a sign of professionalism (Why Validate?, n.d.).

The W3C provides validation tools to help with the task:

- [HTML Markup Validator](#)
- [W3C CSS Validator](#)

The SCORM standard, mentioned in section on content creation and tools, ensures interoperability of learning objects between compliant LMS products. This prevents having your learning materials locked in to one vendor. Most products support SCORM versions 1.2

and 2004. The Tin Can version is gaining support. A list of SCORM compliant products is available from the [Advanced Distributed Learning web site](#).

Make eLearning Accessible to Persons with Disabilities

People with disabilities are often at a disadvantage when using electronic information technology. When we develop software and hardware technology with their needs in mind, it gives persons with disabilities incredible potential for them to have equal opportunity in employment and access to information. Unless we design our learning technologies with the disabled in mind, they are difficult or impossible for many disabled persons to use.

Numerous countries including the [United States](#), [Canada](#), [Australia](#) and [countries of the EU](#) have adopted electronic information technology rules that apply to public institutions. There is movement in a number of these countries including the U.S. to extend these to private institutions as well. In the U.S., the Department of Justice has issued an [Advanced Notice of Proposed Rulemaking](#) declaring their intent to bring web sites officially under the ADA (Advance Notice of Proposed Rulemaking on Accessibility of Web Information and Services Provided by Entities Covered by the ADA, 2010). The World Wide Web Consortium (W3C) has developed the [Web Content Accessibility Guidelines \(WCAG\) 2.0](#). In many cases, nations are adopting the level A and AA of WCAG 2.0 for their standards.



Man in Wheelchair wearing a sip and puff switch.

Image credit: Origin Instruments

Failure to make workplace-learning materials accessible may result in a disability unfriendly workplace. If this leads to discrimination in hiring or promotion, there is the potential for an ADA lawsuit. Blind students in Florida sued Florida State University for failing to provide an [accessible eLearning system](#). Be proactive and include accessibility in your organization's standards.

Create Learner Centered Objectives

Learning objectives need to be student centered and measurable. Objectives should address what the learner will accomplish not the instructor. Think about what you want the student to learn. A common formula to create learning objectives is:

Objective = Stem + Action Verb + Outcome

Example:

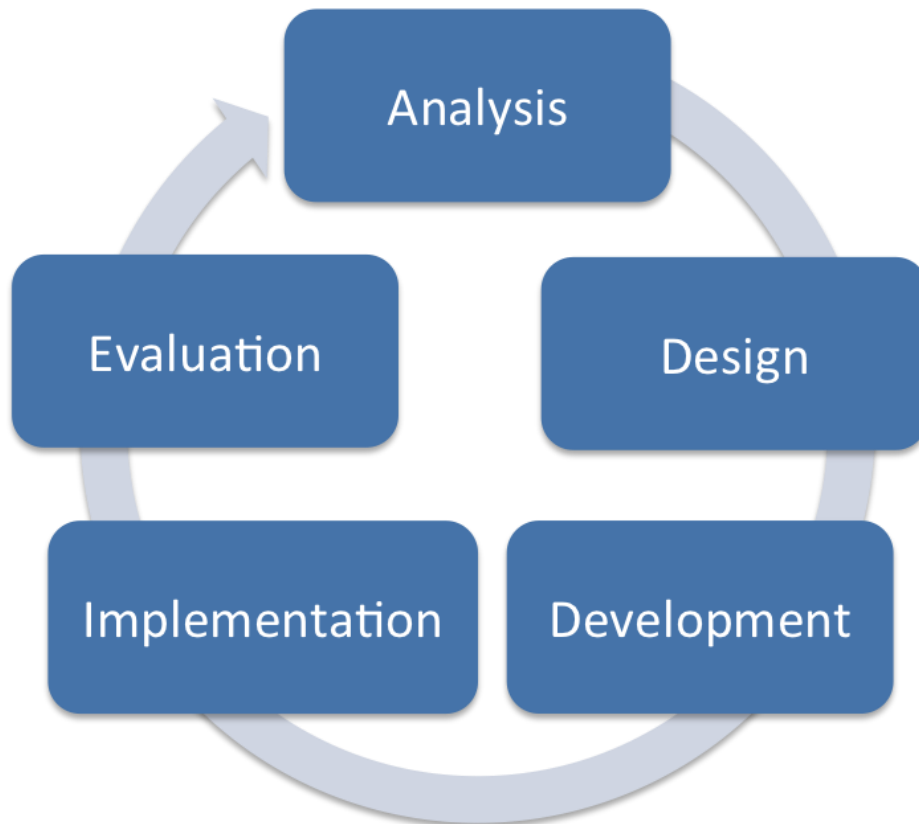
Stem: After completing the lesson, the student will be able to

Action verb: identify

Outcome: the muscles of the leg.

You can find additional examples with stems, verbs and outcomes at the educationoasis.com web site.

If the outcomes are measurable, you will be able to assess what the student was able to learn and take an iterative approach to designing your instructional materials. The ADDIE model, developed by Florida State University, is an example of a model for continuous evaluation and improvement. It has five steps: analysis, design, development, implementation and evaluation. After completing the evaluation step, you can repeat the steps, as shown in the ADDIE diagram, fix problems and make additional improvements.



ADDIE Model of Development and Improvement

Image Credit: Dave Braunschweig (Own work) [CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0>)], via Wikimedia Commons

Understand and Use Multimedia Wisely

Become familiar with the various video and audio formats and their advantages and disadvantages. It is important to understand what platform your audience is using to view or listen to the lesson and use the appropriate media format. For instance, the Windows media file (.wmv) is only viewable on Windows and Flash media will not play on an iPhone or iPad.

Some formats use compression methods that produce smaller but lossy video files. The lossy methods discard some information in a way that is not detectable by most users, but is also unrecoverable. These compressed files are smaller, load quicker on the web and reduce bandwidth costs. Keep the source files in case you need a higher quality video or audio later.

Develop standards for your multimedia files. Look for the best compromise between file size, quality and support on multiple platforms and business requirements.

Be Copyright Aware

In the United States works created on or after March 1, 1999, do not need to include a copyright declaration. By default, those works are given copyright. The US copyright law recognizes a [fair use exception](#) that allows for use under certain circumstances.

The creator of a work can opt-out of copyright and put the work in the public domain. The Creative Commons (CC) licensing scheme was developed for this purpose. The Creative Commons organization has developed [several licensing schemes](#) including some that allow or disallow commercial use.

When licensing video, photos and other media from third parties, read the license carefully. Just because you paid to license a photo or other media that does not necessarily entitle you to use it with multiple clients or both for web and print. Be sure to document the licensing of images, video and audio whether CC licensed or purchased.

Include guidelines for handling copyright in your standards. It is important your team all understand and follow your standards.

Simplify the Editing Process

Create style guides and templates for your e-Learning projects. These should cover items such as page layout, line spacing, voice and writing style. Standardization helps ensure consistency across projects and team members. This helps reduce problems during the editing process. A sample style template is available from the elearninguncovered.com web site.

Create a Documentation and Archiving Plan

It is important to document your processes especially if you are developing learning materials for health and safety courses. Students who fail a course may challenge or file a suit. If you followed best practices and kept good documentation, this will be key to defending your work.

It is beneficial to keep project documentations and archive it for future use. An older course may need revisions a few years later. Having quality documentation will be important. The course developer may no longer work at your organization to handle the revisions. Good documentation allows a new person to follow the course developer, understand the project requirements and complete the revisions in less time.

An archiving plan is essential to being able to find older materials when needed. The plan should cover who, what, where and when. Work with your information technology department on storage requirements and locations. Consider off-site or cloud storage locations to protect your archives in case a fire or natural disaster were to destroy your office copies. Some cloud providers, such as [Amazon's Glacier](#) service, offer archival services at lower prices for this type of storage (since they are rarely accessed).

Consider saving source files in alternate formats. What will happen if you needed to open a six-year old version of a proprietary eLearning file such as Adobe Captivate and it is not compatible with the current version? For long-term storage, consider saving documentation in PDF/A an archival standard designed for digital preservation of electronic content.

Do not neglect to include documentation and archiving procedures in your standards and procedures. While you may not need to access these often, when you need to you'll be glad you did.

Establish Quality Assurance Procedures

It is important to develop a plan to measure and analyze performance. This helps you evaluate your learning goals, objectives and answer important questions. Did our course accomplish its objectives? What were the strengths and weaknesses? Dr. Donald Kirkpatrick developed a four level model for evaluation of learning as shown in the table (Kirkpatrick, n.d.).

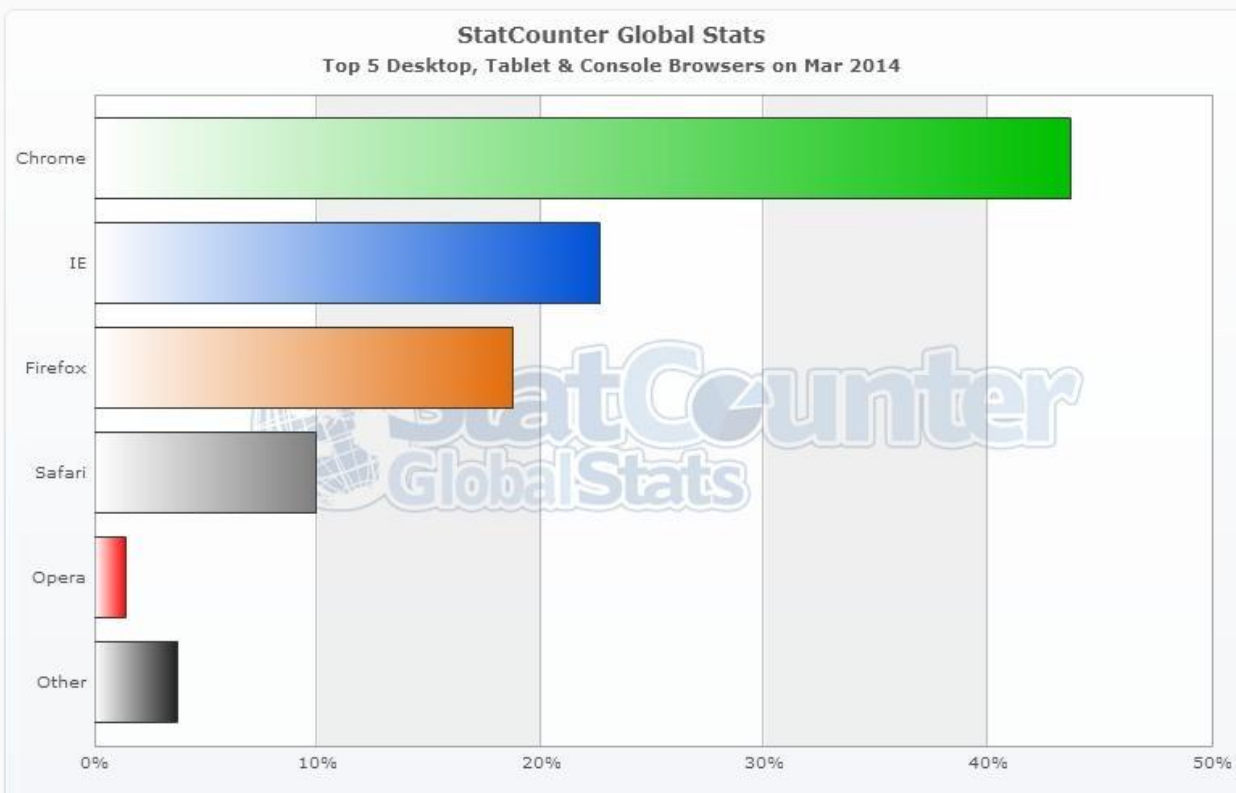
Use this as a guide in developing your plan. Evaluations allow us to take an iterative approach to our e-learning development. This will allow you to integrate a continuous improvement process into your eLearning development.

Kirkpatrick's Four Levels of Learning Evaluation

Level 1: Reaction	What participants thought and felt about the training.
Level 2: Learning	The resulting increase in knowledge and/or skills, and change in attitudes. This evaluation occurs during the training in the form of either a knowledge demonstration or test.
Level 3: Behavior	Transfer of knowledge, skills, and/or attitudes from classroom to the job (change in job behavior due to training program). This evaluation occurs 3–6 months post training while the trainee is performing the job. Evaluation usually occurs through observation.
Level 4: Results	The results that occurred because of attendance and participation in a training program (can be monetary, performance-based, etc.)

Use your best practices guide to build checklists. Require your team use them throughout the development process. This will save your team time and ensure they are producing effective eLearning materials.

Include validation checks for HTML, CSS and accessibility. Some companies limit employees to using one browser. If your learners have a choice, it is best to test your pages in the top four browsers as part of your QA process. As of March 2014, these were Chrome, IE, Firefox and Safari (Top 5 Desktop, Tablet & Console Browsers on Mar 2014, 2014). The Mashable.com site lists several [cross-browser testing tools](#) that can be helpful for this.



Browser Usage March 2014

Image credit: <http://gs.statcounter.com/>

Plan to develop internal standards to ensure quality in your eLearning efforts. Develop a quality assurance program. If you are using learner centered measurable objectives, you should be able to document performance improvement. You have taken a risk in championing

eLearning. You will want to share these successes with management and show their continued support is justified.

As an eLearning professional, you will want to ensure that your team is producing quality-learning materials that produce measurable and documentable results. To accomplish that, you will need to develop standards documentation, quality assurance procedures and ensure your team trains on and complies with them. For your eLearning effort to succeed, you need be able to demonstrate and communicate your team's successes to management. It is equally important that as professionals we understand the business side of eLearning. You will be better able to demonstrate this to management by developing an understanding of business issues such as return on investment as well as potential legal issues such as software licensing, accessibility and copyright.

Summary

The evolution of elearning has made content accessible to more audiences than ever before. Learning materials that at one time were only available in the classroom can now be accessed from nearly anywhere. Facing the concept bringing online training to a business environment unaccustomed to the format can appear daunting and become time consuming, tedious, and costly.

There will be barriers to overcome and questions to answer. Though people may know the shift to online learning is inevitable, they will likely have concerns about quality and access.

Making the shift to elearning will force you to answer many different questions. Where do you begin? How do you ensure effectiveness? What technology do we need? What practices will you follow in content creation and what tools will you use? How will you address content accessibility? This article has answered those questions.

From preparing the organization and gaining buy-in, learning best practices in content creation and software trends, and establishing quality standards and accessibility requirements, this article has provided the framework the professional needs to make the transition into the digital age.

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Appendix: Standards and Content Quality Resources

Best Practice Guides

CDC's E-learning Essentials

<http://www.cdc.gov/learning/local/pdf/ElrngEsstls.pdf>

Outstart's Best Practices for Creating E-Learning

<http://ngolearning.org/learningtools/outstarttrainer/Document%20Library/1/Best%20Practices%20for%20Creating%20E-Learning.pdf>

eLearning Network's Best Practices Guide

<http://www.elearningnetwork.org/resources/guides>

Standards

Joan Lasselle's 5 Steps to Developing eLearning Standards

http://cdn2.hubspot.net/hub/61190/file-26157023-pdf/pdfs/elearning_standards.pdf

World Wide Web Consortium's HTML & CSS Standards

<http://www.w3.org/standards/webdesign/htmlcss>

Web Accessibility

Webaim

<http://webaim.org>

World Wide Web Consortium's Accessibility Guidelines 2.0

<http://www.w3.org/TR/WCAG20/>

Cal State Tips & Tutorials — Creating Accessible Content, How do I create accessible eLearning materials?

<http://calstate.edu/accessibility/tutorials/eLearning.shtml>

Accessible E-Learning

<http://www.w3.org/WAI/RD/2013/e-learning/>

Equity in Electronic and Information Technology

<https://s3.amazonaws.com/2Accessibility/eita/reflection.html>

Accessibility testing tools

Webaim's Wave toolbar

<http://wave.webaim.org/toolbar/>

Color Blindness Simulator

<http://www.iamcal.com/toys/colors/>

Webaim's Color Contrast Checker

<http://webaim.org/resources/contrastchecker/>

NVDA Screen Reader

<http://www.nvaccess.org/>

Learning Objectives

Learning Objectives: Stems and Samples

http://www.educationoasis.com/curriculum/LP/LP_resources/lesson_objectives.htm

Intended Learning Outcomes

<https://tll.mit.edu/help/intended-learning-outcomes>

Writing SMART Learning Objectives

<http://explarning.ucf.edu/registered-students/tips-for-success/writing-smart-learning-objectives/195/>

Writing Good Learning Objectives

http://bama.ua.edu/~tmiller1/eport/csm562/TIG_4_Learning_Objectives.pdf

Writing Good Learning Objectives

<https://wikis.uit.tufts.edu/confluence/display/UITKnowledgebase/ADDIE+Instructional+Design+Process>

Multimedia

Lossy and Lossless Compression

<http://computer.howstuffworks.com/file-compression3.htm>

HTG Explains: What Are the Differences Between All Those Audio Formats?

<http://www.howtogeek.com/howto/40465/htg-explains-what-are-the-differences-between-all-those-audio-formats/>

Video Formats

<http://www.mediacollege.com/video/format/>

The State of HTML5 Video

<http://www.jwplayer.com/html5/>

Copyright

Copyright Clearance Center

<http://www.copyright.com/content/cc3/en/toolbar/education.html>

ALA Copyright Information Page

<http://www.ala.org/advocacy/copyright>

Creative Commons

<http://creativecommons.org/>

Fair Use by the US Copyright Office

<http://www.copyright.gov/fls/fl102.html>

Editing

U of Colorado, Denver Style Guide for Writing Online Custom Courses

<http://www.cu.edu/sites/default/files/eld-style-guide.pdf>

But the stylebook says . . .

<http://www.theslot.com/style.html>

How To Learn A Style Guide In 10 Days

<http://nola.copydesk.org/wp-media/styleguide2012.pdf>

Writing Style Guide Template

<http://www.elearninguncovered.com/resources/c2e/WritingStyleGuideTemplate.pdf>

Documentation and Archiving

10 Common Data Archiving Mistakes (and How to Avoid Them)

<http://www.ironmountain.com/Knowledge-Center/Reference-Library/View-by-Document-Type/General-Articles/1/10-Common-Data-Archiving-Mistakes-and-How-to-Avoid-Them.aspx>

Sustainability of Digital Formats Planning for Library of Congress Collections

<http://www.digitalpreservation.gov/formats/fdd/fdd000125.shtml>

UNM's Digital Data Management, Curation and Archiving

<http://libguides.unm.edu/content.php?pid=137795&sid=1274407>

PDF/A in a Nutshell 2.0

<http://www.pdfa.org/publication/pdfa-in-a-nutshell-2-0/>

National Archives - Frequently Asked Questions (FAQ) About Digital Audio and Video Records

<http://www.archives.gov/records-mgmt/initiatives/dav-faq.html>

Software and Terms of Use

Trolls: unlike zombies, they want your money not your brains

<http://www.lexology.com/library/detail.aspx?g=3551d0b1-7adc-4359-a0bb-c3198a78e307>

Trolling Effects

<https://trollingeffects.org/>

The importance of legal review of software license agreements

<http://www.lexology.com/library/detail.aspx?g=133daf3a-b03c-4c82-9fcd-fe69b8a5c3df>

A practical guide to software license agreements: governing law and dispute resolution

<http://www.lexology.com/library/detail.aspx?g=a61fd185-0516-4136-b92b-103b96aa37f9>

Reviewing End-User License Agreements

<https://www.us-cert.gov/ncas/tips/ST05-005>

Indemnification (License Agreement)

<http://www.contractstandards.com/contract-structure/indemnification/indemnification-license-agreement>

Software License Limitation of Liabilities

<http://www.contractstandards.com/contract-structure/exchange/software-license-limitation-of-liabilities>

Software License Types

<https://tulane.edu/tsweb/software/software-license-types.cfm>

Software Licensing

<https://its.uncg.edu/Software/Licensing/>

Quality Assurance

The Ultimate eLearning Course Design Checklist

<http://elearningindustry.com/the-ultimate-elearning-course-design-checklist>

What Makes a Good Checklist?

<http://webmm.ahrq.gov/perspective.aspx?perspectiveID=92>

Assessment and Measurement of e-Learning

<http://www.collingsmedia.com/pdf/assess%20e-learning.pdf>

Software Tools

1. Development Tools

- a. [Lectora](#)
- b. [Articulate](#)
- c. [Adobe Captivate](#)
- d. [RecordMyDesktop](#)

2. Audio Visual Tools

- a. [Camtasia](#)
- b. [Final Cut Pro](#)
- c. [Adobe Premier](#)

3. Audio Visual Hosting Services

- a. [YouTube](#)
- b. [Screenr](#)
- c. [Screencast](#)
- d. [Vimeo](#)

4. Cloud Hosting

- a. [Amazon Web Services](#)
- b. [Microsoft Azure](#)
- c. [CDN - Content Delivery Network](#)

5. Office Documents

- a. [Word/ Excel /Powerpoint - office 365](#)
- b. [PDFs](#)