

Culture Content LMS:

# Prepare for eLearning Success



SECTION 1: Your eLearning Strategy

SECTION 2: Instructional Design

SECTION 3: The Learning Management System

# The impact of eLearning on organizational learning

It is argued that digital technologies and the World Wide Web are changing the educational landscape on a global level, and represent a paradigm shift for learners, educators, and organizations (Rosenberg 2006; Kahn 2005). They now represent a growing and important component of training provisions in all types of organizations (Garavan 2010). Whereas it can be argued that the impact of future eLearning trends are difficult to measure as an exact science, exploring the greater use of technology in an organization can act as an important bridging process between the traditional role of education and the somewhat undefined future (Garavan 2010).

There are multiple definitions of eLearning in the literature. It can be described as “an all-encompassing term generally used to refer to computer enhanced learning” (Myers 2007, pg. 136). It may include the use of web-based teaching materials, wikis, CD-ROMS, email, blogs, and includes the use of multimedia (text, audio, video, animation, still images and interactivity). Whereas this definition can mean many things to many people it is important to note that eLearning is primarily concerned with the educational uses of technology, with education outweighing technology (Masters & Ellaway 2008).

The changing educational landscape brings with it benefits such as cost savings, time efficiency, standardization of content and 24/7 access to learning, among others. As a result more and more organizations are asking themselves how they can introduce or expand upon existing eLearning to avail of these benefits. Different companies will transition for different reasons. Some may be developing eLearning materials to pass onto their customer base, many may be developing them for their own staff training, while others may be developing them as part of their immediate role (e.g. university or college lecturers).

Although eLearning may well be changing the educational landscape, the range and speed of the uptake and implementation into organizations varies enormously and is impacted by factors such as financial, infrastructural, cultural and organizational readiness (Garavan 2010). If you are reading this ebook, there’s a high probability that you and your organization are either considering transitioning to eLearning or expanding upon your existing eLearning initiatives through LearnUpon’s Learning Management System. You may also be considering changing the format of existing online training materials into SCORM or Tin Can compliant course content for greater scalability.

# About this ebook

We have written this ebook to provide you with an overview of the key elements involved in transitioning to or expanding upon current eLearning initiatives, and to demystify the process. There are several sections to the paper which are clearly detailed in the table of contents to follow. In summary the key sections include the following:

- The importance of an organizational eLearning strategy
- Instructional design with a focus on the ‘reusable learning object’
- Choosing your LMS: what to look for

It is beyond the remit of this ebook to go into each section in great detail. The content however is fully researched and based on the scientific findings and opinion from industry experts. All references are available in the comprehensive reference list at the end. We have also included helpful links to various sites that will give you access to a wealth of resources for your own course creations.

Your prior knowledge and exposure to eLearning will determine your level of familiarity with the various eLearning terminologies you will come across throughout this ebook. For simplicity we’ve included a table of eLearning terminologies to act as a guide. It’s by no means an exhaustive list but aims to explain some of the more common terms. As you examine the list you may also be able to identify your own role in the eLearning process within the context of your organization.

# About LearnUpon

LearnUpon is a powerful learning management system loved and trusted by hundreds of organizations all over the world. LearnUpon is quick to setup and easy to use with no implementation fees or other hidden costs. Our customers are up and running, delivering courses to their employees, clients and partners in less than an hour of signup. The LMS is designed and developed by a team with over 25 years’ experience in the eLearning industry. LearnUpon is the most intuitive learning platform on the market today.

Table 1

# eLearning Terminologies and Acronyms

The Term:	Definition:		
Instructional Design (ID)	Is concerned with creating an educational system that makes the acquisition anvd subsequent transfer of knowledge easier, more effective and more appealing to your learner.	Synchronous eLearning	Learning that is happening in real time. Allows for real-time interaction such as video conferencing or webinars.
Instructional Designer	Is the person responsible for executing the above. They will frame the information and transform the learning materials into clear and meaningful content to ensure knowledge acquisition and application.	Asynchronous eLearning	Is a student-centered teaching method that uses online learning resources to facilitate information sharing outside the constraints of time and place among a network of people.
Instructional Design Models	Creating this educational system is essentially a process which can typically be based on one or more ID theories or models. Two such models for e.g. are the ADDIE model and the AGILE model (both will be examined in more detail later in the ebook).	Learning Management System (LMS)	Is a software used to create, manage, deliver, and track training courses assigned to employees, clients, and/or partners. An LMS can be used to manage online (eLearning), offline (ILT) and blending learning.
Subject Matter Expert (SME)	The experts in terms of knowledge relating to your course content. They communicate this knowledge and offer outlines of subjects or topics to be included. They check the accuracy of content as it is designed by the instructional designer.	SCORM	Shared Content Object Reference Model – is a set of standards and specifications that enables organizations to produce effective and efficient online training for wide audiences and enables them to track learner behavior and compliance with training.
ILT	Instructor-led training, sometimes referred to as classroom based training or face-to-face (F2F) training.	Tin Can API	Also referred to as the Experience API (xAPI) and is considered an advancement of SCORM. It is an eLearning software specification that allows learning content and learning systems to communicate in a manner that records and tracks all types of learning experiences.
Blended Learning	Using a combination of face-to-face and online training	Learning Record Store (LRS)	This is a means of recording learning experiences as referred to above. They can exist on their own or within traditional Learning Management Systems.
		Pedagogy	The discipline that deals with the theory and practice of education.

Section 1

# Your eLearning Strategy

## The importance of your eLearning strategy

When it comes to considering the many reasons an organization may choose to move their training material online, it becomes apparent that there is no ‘one-size-fits-all’ approach. Each individual organization needs to develop a strategy within the context of their own particular circumstances. As an organization you need to establish why you are considering transitioning to eLearning, who your target audience will be, over what period you plan to execute the strategy, if the materials will all be moved online or used as part of a blended learning approach, what your eLearning budget is, amongst many other decisions. Essentially you are aiming to change your current practice. Any organizational change needs to be carefully managed and mindful of all processes involved in a successful transition. Your strategy should outline your goals and expectations, identify champions to bring about the change, and communicate your plans to all stakeholders, thereby creating a supportive learning environment (Kahn 2005).

Your eLearning strategy should align and integrate with your overall organizational strategy and other department strategies. A good start in ensuring this occurs is to examine key working documents. The relevance of particular documents will differ depending on your rationale for introducing/expanding your eLearning activities and the type of organization you are. They will help inform your eLearning strategy. Key working documents may include:

- Business Plans
- Training Plans
- Customer Service Plans
- IT Strategy Plans
- Corporate Procurement Plans
- Budget Plans

Your strategy will determine how ready you are for such a change. Marc J. Rosenberg, an expert in organizational training and eLearning, talks about the importance of the ‘4 Cs of Success’ when introducing eLearning, which refer to: Culture, Champions, Communication and Change (Rosenberg 2000).

## The 4 Cs of your strategy

**Culture:** An organization that does not support learning will not support a transition to eLearning. You must examine your learning culture. Do you currently value organizational learning and training and are you transitioning to eLearning for the right reasons?

**Champions:** Identifying those in the organization that will lead the eLearning initiatives and bring others along. Such people will need the full support of the organization and the necessary time and training to act as champions. They should not be given the added responsibility on top of an already full workload. Avoid ad-hoc proportioning of such a role.

**Communication:** How you communicate your strategy is crucial. Effective communication is the key to any change initiative. Liaise from the outset with all key stakeholders and anyone that will be involved in or affected by this change. If you have identified your champions they will be instrumental in coordinating communication efforts and act as links between your organizational members, giving all parties a voice at important junctures, from planning to implementation to evaluation. A clearly communicated strategy will broadcast your organization’s vision of and commitment to eLearning. It will increase user buy-in and help minimize resistance to change.

**Change:** Changing how people learn is complex and requires considered and deliberate steps, and time (Clayton 2009). Merely implementing eLearning does not bring about behavioral change. You need to deploy a change strategy long before you actually introduce the change. Adapting a ‘support and facilitation’ change management style is key. This style focuses on providing the support necessary to overcome resistance arising from a fear of the unknown and facilitating new practices from there. Yet again your champions can play a key role here. They can be transformed into effective change agents if they are appropriately trained and work collaboratively. They can work alongside staff and identify those who are critical to the success of the initiative. These members can become what are termed as ‘early and second wave adopters’ who, once on board, are highly influential in helping generate success stories, as users are more likely to accept something they helped create (Tiernan et al 2006; Kahn 2005). More detailed information is available by viewing Rosenberg’s many publications and presentations available by clicking here – [marcrosenberg.com](http://marcrosenberg.com).

Rosenberg (2000) also developed the ‘eLearning Readiness Survey’, which is an excellent tool to help organizations establish where they are in their eLearning journey and where they need to concentrate their efforts. Table 1.1 explains the survey and rating scale. The detailed survey itself and how to interpret the results are available in appendix one.



# The 'eLearning Readiness Survey'

Rating Scale		
0 = No evidence of any positive initiative or result in this area.		
1 = Little evidence, but there are potential improvement opportunities.		
2 = Initiatives underway but progress is fleeting.		
3 = Initiatives underway with some sustainable success probable down the road.		
4 = Reasonable success achieved; now the challenge is to keep it going in the right direction.		
5 = Approaching sustainability – perhaps even a best practice.		
Area 1	Your Business Readiness	Collectively there are 20 key questions about building a durable eLearning strategy. They represent some of the most important strategic issues organizations face when transitioning to eLearning. The questions are grouped into these seven areas, which are rated from 0-5 as per the rating scale above.
Area 2	The Changing Nature of Learning and eLearning	
Area 3	The Value of Instruction and Information	
Area 4	The Role of Change Management in Building a Durable eLearning Strategy	
Area 5	How Training Organizations Must Reinvent Themselves to Support eLearning	
Area 6	The eLearning Industry	
Area 7	Your Personal Commitment	

Table 1.1: The 'eLearning Readiness Survey' (Adapted from Rosenberg 2000).

# Design strategies for online and blended learning

Other key strategic decisions involve design strategies for online and blended learning, such as:

- Do you create/design instruction or information content types?
- Should you provide face-to-face, online or real life approaches?
- Should you provide synchronous or asynchronous learning?

Blended learning can be described as an education program or course in which an individual learns:

- At least partly through an online platform
- At least partly in a traditional face-to-face classroom set up
- When the content from both mediums are connected to provide an integrated learning experience

(Clayton Christensen Institute 2012)

The 'eLearning Guild's Handbook of eLearning Strategy' (2006) is a fantastic resource which delves into the three questions above in minute detail. The tables that follow are excerpts from this handbook and summarize the answers to the above questions.

Having established the why, what and how of your eLearning strategy, let's delve further into the 'who', in terms of the people who will be actually creating your online content. Agreeing on clear roles in the content development stage is critical.

Who will be supplying the content? Who will be designing the content? Who will be reviewing the content during and after the design stage? In essence who is your subject matter expert and who is your instructional designer and what will the collaborative process between these stakeholders look like?

Instruction – Information Continuum

	Instruction	Information
	<i>Module, lesson, course, tutorial, demo, game, practice, simulation, quiz, test</i>	<i>Who, what, why, when, where</i>
Purpose	Gain skill via practice and feedback	Improve comprehension
Audience	Often built for narrower audiences	Often built for wider audiences
Content	Purposely limited, may link to additional content	Often less restricted to meet wider audience needs
Interface	Simple interfaces, reuse throughout course content so users know what to expect	Less restricted content requires careful interface design and testing
Activities	Support learning and transfer	Quickly locate information
Multimedia	Use when needed to improve learning, don't use gratuitously	Use when needed to improve comprehension, don't use gratuitously
Assessments	Test, performance, real-life performance	Survey, multiple choice questions

Table 1.2: Instruction or information type content

Synchronous or asynchronous?

	Synchronous	Asynchronous
	<i>Chat and IM Video and audio conference Live webcasting Application sharing Whiteboard</i>	<i>Email Discussion forum Wiki Blog Archived webcasting</i>
Benefits	Time set aside  Real-time demonstrations  Visual cues (gauge emotions, understanding)  Better for poor reading and writing skills  Instructor directed	Convenience  Access at work or home  Time to reflect  Lack of visual cues (privacy)  Standardized content  Review materials as needed  Self-direction
Challenges	Inconvenience and logistics – time zones  No time to reflect  Event oriented  Instructor control	Lack of immediacy  Lack of visual cues (potential of misunderstanding)  Frustration when needing help  Easier to avoid
Examples	Webinar, application sharing, chat, instant messaging, real-time collaboration	Self-paced module, discussion forum, tutorial, archived webinar, collaborative writing tools

Table 1.3: Benefits and challenges of synchronous and asynchronous delivery



Face-to-face, online, or real life approaches

	Classroom	Online	Real life
Benefits	Social aspects  Immediacy of feedback  Easy to see performance	Easily scalable  Possible to customize  Easier tracking  Easier standardization  Incremental cost is lowered when spread over wide audience	Real examples, not made up  Immediate feedback and support  Able to see the full complexity of job skills  Mentoring or coaching over time is possible
Challenges	Usually linear, time-bound  Participation is limited by available time and need to “cover” content  Travel greatly increases costs  Not easily scalable	Boring when not enough consideration is given to interaction needs  May be challanging to use  Delayed or nonexistent feedback and support is common  May feel “remote”	Non-standardized quality of on-the-job trainers and training process  Can be time-consuming  May need to limit practice for safety and other concerns  Learner may be over-whelmend

Table 1.4a: Benefits and challenges of classroom, online and real life learning.

Instructional components for different approaches

Purpose	Classroom components	Online components	Real life components
Content delivery	Course workbook, presentation slides	Lesson, animation, slides with narration, webinar	Policies, manuals, job aids
Activities	Exercises, simulations, cases, learning lab	Demo, simulation, tutorial, cases, problems	Job shadowing, what-would-you-do-if scenarios, real life practice
Assessments	Checklist, test, performance	Checklist, test, simulations	Performance
Support, feedback and help	Instructors, peers, instructional materials, happy sheets	References (online and print), performance support tools, application sharing, ask expert, searchable documentation, resource lists	Supervisor, on-the-job trainer, other workers, real life resources

Table 1.4b: Instructional components for classroom, online and real life learning environments

Section 2

# Instructional Design

# Instructional Design Models

Now that you’ve identified your eLearning strategy it is advisable to choose an Instructional Design (ID) model in order to execute your strategy. Both the ADDIE and AGILE model are well known, with the latter gaining increasing popularity due to its more collaborative approach. Let’s briefly examine both models.

The **ADDIE** model, as seen in figure 2.1, is arguably the best known and most widely used ID model. This model takes a classic waterfall approach to development and is essentially an easy to use five-step linear process. Roles are clearly defined and progress can be concisely measured and reported. It’s best suited to a predictable and process orientated work environment. This approach works off the assumption that all of the requirements are known in advance of content development (Regnall 2014; Culatta 2013). The collaborative aspect tends to occur in the first and last stages of the process. Changes are generally made near the end of the process after it has been reviewed.

The **AGILE** model has evolved from the iterative approach to development and is gaining increasing popularity for online content design. As you’ll see from figure 2.2 the key difference with this model is the collaborative aspect of the process. Collaboration occurs at all stages and content is tweaked at any stage with changes continuously integrated. It’s a process best suited to a fluid, adaptive-orientated type working environment. There is an inherent flexibility to this approach which arguably allows for a quicker time-to-market as waiting time is reduced throughout (Regnall 2014).

As you can see both models offer advantages. Your choice of model can determine the extent of collaboration between your SME and designer. Deciding on a model may often come down to familiarity with one over the other, or if one appears a better fit for your organizational culture. For the fluency of your course development it would be best to choose one model and commit to the stages as opposed to an ad-hoc approach that will ultimately jeopardize your project.

The application of a model will also help clarify what content is suited for an online environment, what is better suited for the traditional face-to-face set up, or when a blended learning approach is best.

Next let’s examine the intricacies of ‘content’.

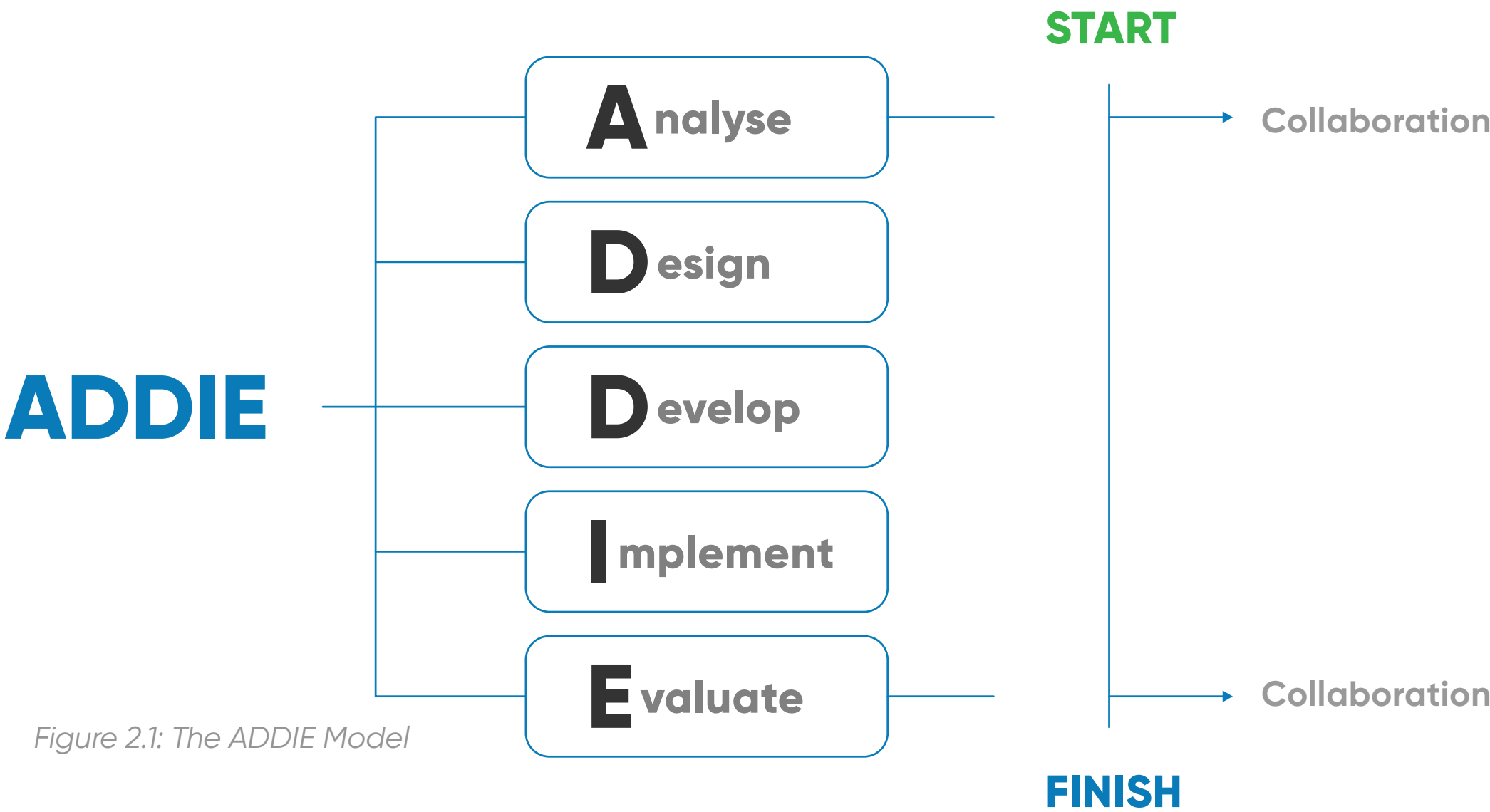


Figure 2.1: The ADDIE Model

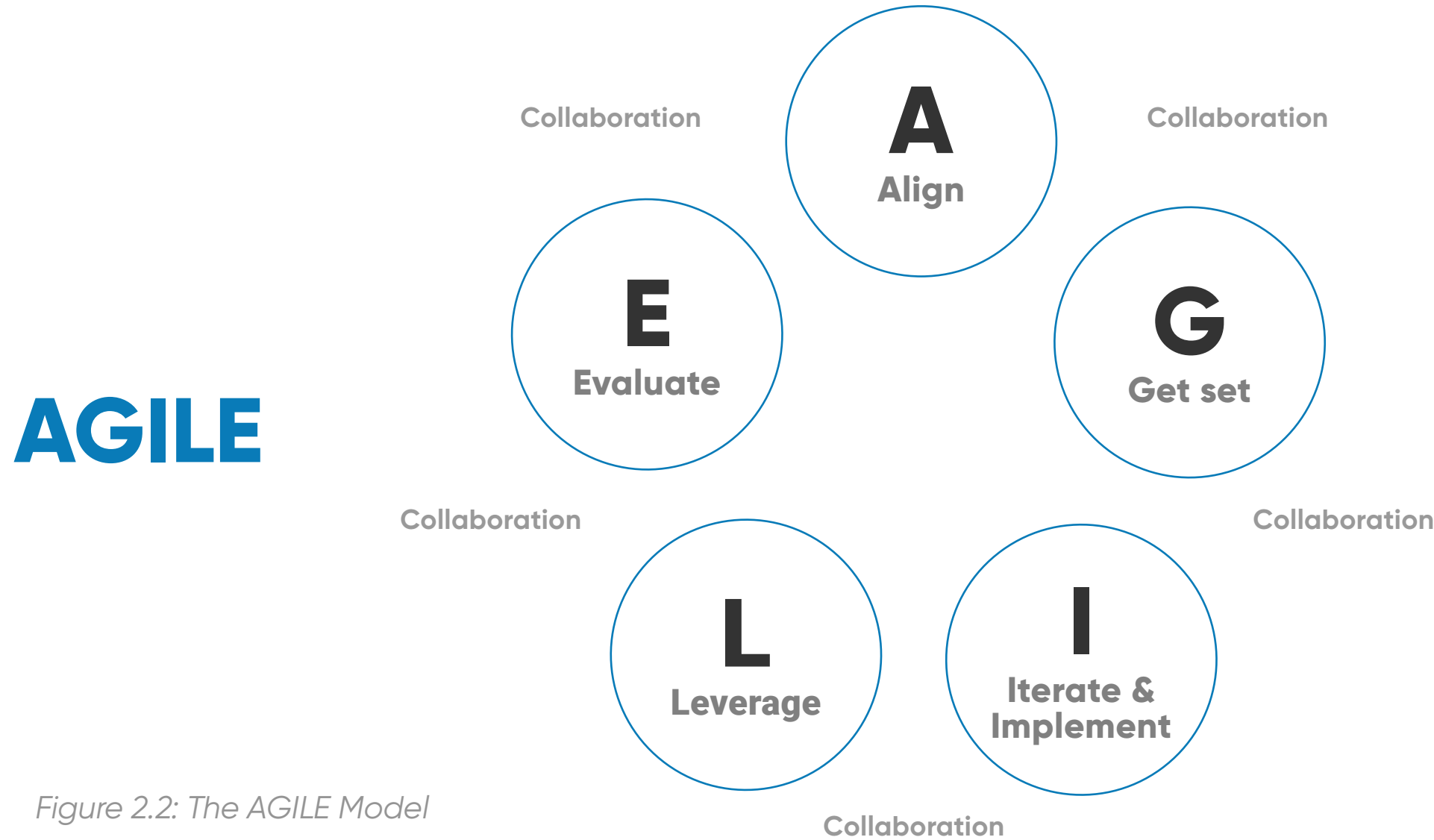


Figure 2.2: The AGILE Model

# Content

Content is king, whether you are delivering it in a face-to-face or online learning environment. The provision of learning content aims to achieve the same purpose, irrespective of the medium in which it is delivered. All learning is concerned with the acquisition and subsequent transfer of knowledge for purposeful gain. However the manner in which the content is prepared and delivered can differ enormously depending on the chosen medium. An experienced facilitator can impart knowledge expertly through an informal conversational approach in a face-to-face environment, for example. He/she can quickly gauge learner engagement and can change tack if the learner appears disengaged.

It is far harder to manage lack of engagement when the facilitator and learner may never meet, as is often the case in the world of online education. The absence of a ‘visible educator’ means that content intended for an online environment needs to be designed in such a way that it positively impacts upon the range and speed of uptake of online learning in an organization, both of which are influenced by many factors. One key influential factor is ‘learner motivation’, which can be greatly enhanced by the creation of content that is relevant to the learner in terms of their job or career. Another key factor is the ‘quality’ of content. This relates to content being relevant, useful, up to date, well laid out, flexible and interactive (Garavan 2010).

However daunting and challenging this may appear, particularly if you are new to eLearning, the challenges are not insurmountable. Creating relevant and quality content can be achieved through eLearning programs that are targeted, customized, and centered on the needs of the learner.

As an organization you may decide to simply utilize your LMS to host existing materials such as PowerPoint, PDFs, images and videos, which are arranged into modules, a system which has become widely used for sharing content. In LearnUpon, for example, you can upload any form of content and then organize it into modules. From there you can create a seamless transition for the learner enabling them to navigate from one piece of content to another. Figure 2.3 highlights some of the course content formats you should expect your LMS to support.

However, many organizations are looking for more efficient ways of developing and sharing content and benefiting from the scalable capabilities of the LMS. The concept of the ‘reusable learning object’ or the ‘digital learning resource’ arguably receives recognition as being the most effective

means of content use. It’s been defined as “a reusable, media-independent collection of information used as a modular building block for eLearning content” (Allan, K. 2008). It would typically use a wide range of resources such as audio, video, animation, static images, text and interactive technologies. This concept of sharing resources of this type has evolved into the internationally recognized SCORM (Shared Content Object Reference Model).

## Import your course content in seconds

With LearnUpon uploading course content is quick and easy. Courses can be created using Word, PDF, PowerPoint, Prezi, SCORM, Tin Can, video, audio, text and image content.



## Video

LearnUpon supports high quality streaming for video based learning. Administrators can select their preferred method of delivery, including secure streaming of video. LearnUpon also supports YouTube, Vimeo, Wistia and Brainshark video content.



## SCORM & Tin Can

LearnUpon supports SCORM and Tin Can course content produced in all the major authoring tools, such as, Articulate Storyline, Adobe Captivate, iSpringPro and Elucidat to name but a few.



Figure 2.3: Course content types supported in LearnUpon



# SCORM

SCORM is a set of standards and specifications that enables organizations to produce effective and efficient online training to wide audiences. It also tracks learner behavior and compliance with training. SCORM enables content authors to distribute their content to a variety of Learning Management Systems (like [LearnUpon.com](#)). A SCORM course is published as a stand-alone course that is then uploaded directly to the LMS. You can read about SCORM in detail by clicking on this link: [To SCORM or not to SCORM, that is the question.](#)

## Experience API or Tin Can API

The Experience API (xAPI) also referred to as the Tin Can API is considered an advancement of SCORM. It is an eLearning software specification that allows learning content and learning systems to communicate in a manner that records and tracks all types of learning experiences and extends to include tracking on mobile devices (Wikipedia 2015). As with SCORM you can read more about Tin Can API by clicking here: [Tin Can API vs SCORM: which should you choose?](#)

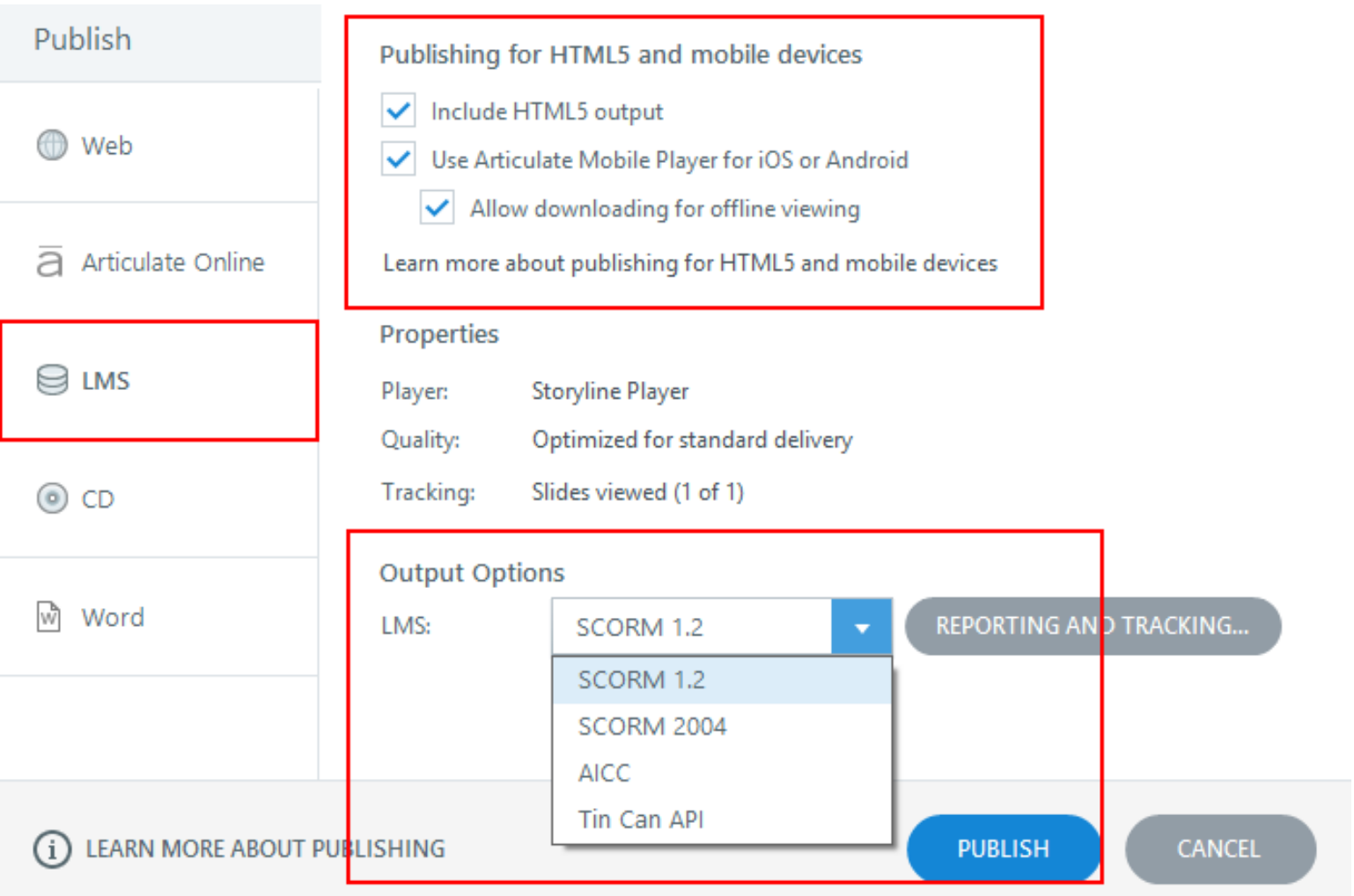


Figure 2.4: The publishing features available in Articulate Storyline.

Most eLearning authoring tools eg. Articulate Storyline, Adobe Captivate and Elucidat, allow you to publish your course content as SCORM or Tin Can API compliant when creating courses for upload to an LMS. Figure 2.4 is an example of the publishing features in Articulate Storyline, which support both. You'll notice from this figure that it can also be published for HTML and mobile devices, which is a great feature considering the increasing use of mobile devices in online learning.

If the creation of such courses is important to you, it is something you will need to be aware of prior to purchasing e-authoring software. It's also important to check with your LMS vendor that the LMS tracks and reports both SCORM and Tin Can API compliant courses. [At LearnUpon we support both.](#) As mentioned in the introductory section, this book will focus on the development of content for a SCORM or Tin Can API compliant course for upload to an LMS such as LearnUpon. Below are some summary points relating to content from an eLearning perspective, that when adhered to should ensure a high quality eLearning course:

- Your content should be relevant to the target audience
- Your content should flow seamlessly
- Your content should be up-to-date and, where applicable, in accordance with other organizational policies or guidelines that inform practice
- Your content should be of a high quality particularly when using audio and graphics
- Your content should clearly reflect your intended course outcomes
- Your content should comply with copyright
- Your published content should be uploaded to your LMS in a coherent and logical fashion
- Your content should link to related content if adapting a blended learning approach

Transforming high quality content into clear and meaningful content for online consumption requires deliberate instructional design decisions. A good instructional designer knows about learning and how to support it. There are so many key elements from the macro down to the micro that will determine the quality of a course.

In the next section we're going to examine both the macro and micro aspects of instructional design and their role in achieving the instructional goal.



# The macro and micro of instructional design

A well designed course is clear in its instructional goal and every aspect of course design is aligned to that goal, from the biggest to the smallest design decisions.

## The ‘macro’ elements of instructional design

Here we’re going to examine the ‘macro’ levels of course design. We look at how people actually learn and the application of principles that support the learning process. These guiding principles become the foundation of any educationally sound eLearning course, which seek to place the learner at the center of the learning experience.

The challenge when designing eLearning courses which draw on the use of multimedia is to examine how technology can be adapted to aid human learning, and not how human learning processes should be altered to adapt to technology. Course design should be based on a cognitive theory of how people learn and draw on scientifically valid research findings.

Let’s first take a step back and look at the concept of learning. The purpose of learning, irrespective of its medium, is to change what the learner knows, whether it be facts, processes, concepts, beliefs or strategies. Effective learning will then positively change behavior as a result (Clark & Mayer 2011).

Mayer (2005) references three metaphors of learning as shown in table 2.1.

Whichever methodology you align your beliefs to will ultimately inform your course design decisions. For the purpose of this paper we’re going to examine the ‘knowledge-construction’ metaphor and its implications for course design. Knowledge-construction draws on the work of Piaget who contends that humans are not passive recipients of information, but seek to generate knowledge by actively engaging in cognitive processing. Learners mentally organize relevant information into coherent structures and integrate them together before consolidating them with prior knowledge.

The key here is ‘cognitive’ processing. Cognition is the process of learning and includes aspects such as awareness, perception, judgement and reasoning. The mind uses existing knowledge and then generates new knowledge. It can be a conscious or unconscious process as well as concrete or abstract.

The metaphor	Learning is:	The learner becomes:	The instructor become:
Response Strengthening	The strengthening or weakening of associations	A passive recipient of rewards and punishments	Dispenser of the rewards and punishments
Information Acquisition	Adding presented information to memory	A passive recipient of information	Dispenser of information
Knowledge Construction	Building a mental representation with the available content	An active sense maker	The cognitive guide

Table 2.1: The three metaphors of learning (adapted from Mayer 2005).

Ongoing research in the area of cognitive science and multimedia, pioneered by Richard E. Mayer, led to the Cognitive Theory of Multimedia Learning, which is based on the following three principles of learning:

- 1. Dual channels: people have separate channels for visual/pictorial and auditory/verbal processing (i.e. dual-channels assumption)
- 2. Limited capacity: each channel has limited processing capacity (i.e. limited capacity assumption)
- 3. Active processing: learning occurs when people engage in relevant cognitive processing during learning (i.e. active processing assumption).

These principles are presented diagrammatically in figure 2.5.

# The 'macro' elements of instructional design

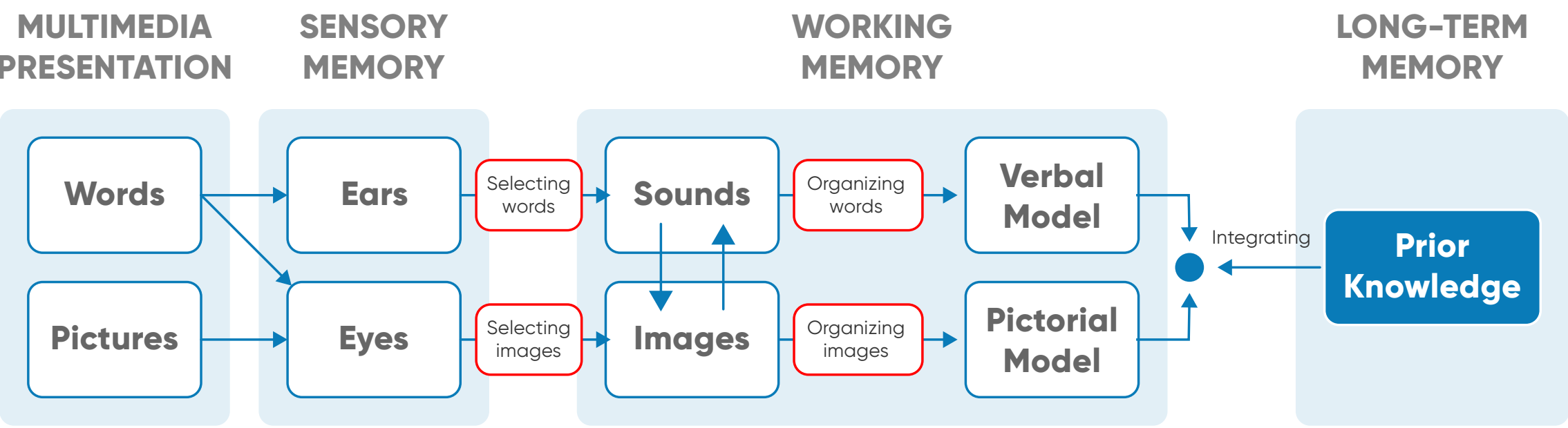


Figure 2.5: The Principles of the Cognitive Theory of Multimedia Learning (adapted from Mayer 2005).

The rationale for this theory is that people learn better from the use of words and pictures together, than from words alone, which is referred to as the multimedia principle (Mayer 2005). When you examine this figure you start to see how the principles apply. There are three important cognitive processes indicated in this figure, which are highlighted using the red boxes:

- Selecting words and images: the learner is selecting relevant words and images from the content presented, then...
- Organizing words and images: the learner mentally organizes both the verbal content into coherent representations and then pictorial content into coherent representations, and then...
- Integrating: proceeds to integrate both the verbal and pictorial representations with each other and then with prior knowledge

(Clark & Mayer 2011).

# Multimedia principle

For the purpose of clarity words can be printed (on screen text) or spoken/narrated (audio), and graphics can be static (photos, graphs, charts, maps) or moving (videos, animations). A multimedia presentation is essentially any presentation that includes both words and graphics. Our focus here though is on the use of multimedia in eLearning course design.

The principle is not applied by merely including pictures after the fact that serve as decorative elements as opposed to supporting the instructional goal. Words and pictures should be coupled on the screen in a meaningful way to allow learners to seek a coherent connection between them and then integrate them for the purpose of deep learning. Graphics can serve different functions in your course. Take a look at table 2.2 below outlining the different types of graphics and their functions in learning.

Graphic Type	Description
Decorative	Visuals which are added for visual appeal or humor
Representational	Visuals added that illustrate the appearance of an object
Organizational	Visuals added to show qualitative relationships among content
Relational	Visuals added to summarize quantitative relationships
Transformational	Visuals added to illustrate changes in time or over space (time lapse)
Interpretive	Visuals added for the purpose of making intangible phenomena visible and concrete

Table 2.2: Different types of graphics and their function in learning (adapted from Clark & Mayer 2011).

# Multimedia principle

Now look at table 2.3 which examines the best use of each graphic type when aligned to different types of course content.

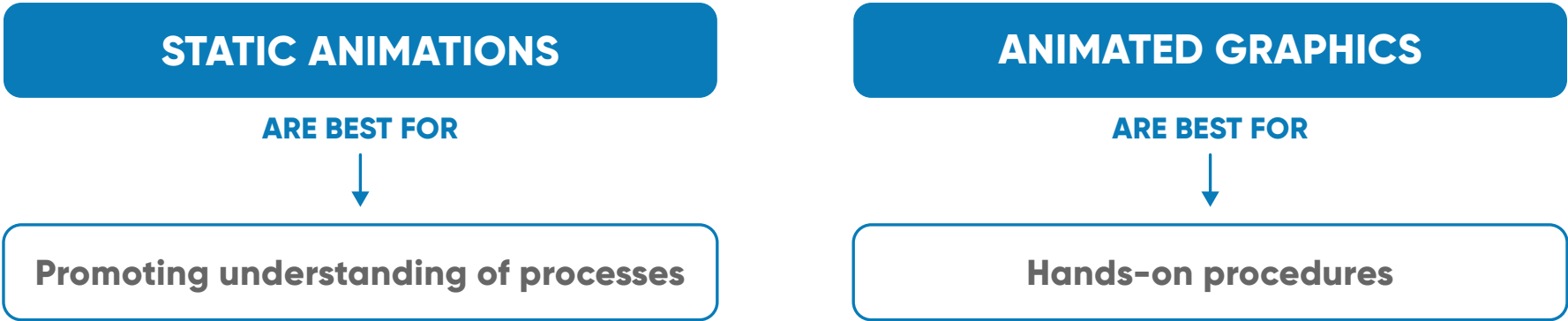
Content Type	Description	Useful Graphic Types
Facts	Unique and isolated information such as specific application screens, forms, or product data	Representational Organizational
Concepts	Categories of objects, events, or symbols designated by a single name	Representational Organizational Interpretive
Process	A description of how something works	Transformational Interpretive Relational
Procedure	A series of steps resulting in completion of a task	Transformational
Principle	Guidelines that result in completion of a task; cause-and-effect relationships	Transformational Interpretive

Table 2.3: Best graphic types to use for each content type (adapted from Clark 2008).

When it comes to graphics, are static or animated ones better? A study carried out by Feng-Qi & Newby (2012) found that the use of different types of graphics resulted in significantly greater levels of learner performance when compared to those individuals who did not receive some form of graphical intervention. Surprisingly however, several weeks after the initial test those learners who were exposed to static graphics outperformed those who had been exposed to animated ones when retested. This finding is supported by other studies (Clark & Mayer 2011; Mayer et al. 2005; Tversky, et al. 2002). It has also been suggested that visuals with fewer details and a simple design style (e.g. a line drawing) resulted in better learning (Clark & Mayer 2011).

Static graphics appear more conducive to learning as they allow for active processing as learners have to imagine and animate the changes themselves. Conversely animated graphics can foster passive learning and remove the ability of the learner to control the pace (Clark & Mayer 2011). In addition animations can often be too complex or too fast to be accurately perceived and can prompt cognitive overload (Tversky et al. 2002).

That is not to say though that animations do not serve a purpose in eLearning. The use of animation can be superior to static graphics when demonstrating a motor skill or tasks that require complicated manual skills. Also the use of time lapse videos can be a powerful tool in some instances, like showing seed germination for example. In summary the best use of each type of graphic could be classified as:



So considering the cost and time involved in creating animated graphics, you should use static ones, unless you have a compelling instructional design rationale for animation (Clark & Mayer 2011). Irrespective of which type of graphic you use, they should be of a high quality. Poorly pixelated images or badly edited animations and videos send out a message of indifference to your target audience.

# Multimedia principle

So it's all simple, right? Unfortunately not. The challenge is to design your instructional content in such a way that primes the processes and avoids cognitive overload. The working memory has a capacity limit, i.e. the mind is only capable of thinking about a few things at the one time. Mayer (2011) as cited in Clark & Mayer (2011) refers to three kinds of demands on one's cognitive processing capacity:

- Extraneous processing: the learner engages in cognitively processing text and images that do not support the instructional goal
- Essential processing: the learner engages in cognitively processing the relevant material, and is created by the inherent complexity of the material
- Generative processing: the learner is cognitively processing core material for the purpose of deeper understanding. It is created by a learner motivation to make sense of the material

It is a balancing act, but even a superficial understanding of these processes and their impact on learning and the types of graphics to choose, will allow you to design a course that places the learner at the center and optimizes learning. Ongoing research into the application of the multimedia principle has yielded multiple additional principles. When followed they allow for the development of an eLearning course that balances the demands on the cognitive processing capacity (Clark & Mayer 2011). Rather than overwhelm you they should be viewed as guiding principles that will actually make the process of designing your courses easier and certainly more effective. The principles discussed in the following pages are based on the work of Clark & Mayer (2011) and are available in their comprehensive book 'eLearning and the science of instruction (3rd ed)'.

They are as follows:

**The Modality principle:** present words as audio narration rather than on-screen text

**The Contiguity principle:** align words to corresponding graphics

**The Redundancy principle:** explain visuals with words in audio OR text but not both

**The Coherence principle:** adding meaningless content on screen can negatively impact learning

**The Personalization principle:** use a conversational tone and style as opposed to formal

**The Segmenting and Pre-training principle:** manage complexity by breaking a lesson into parts

Let's briefly examine these principles in a little more detail. What you will notice as we go through them is that there is an overlap between the principles and at times an apparent contradiction. There are always exceptions to rules and as technology advances, particularly in the field of mobile devices as used for mLearning, the principles become more flexible in their application.



# The Modality principle

This principle advocates that presenting words as narrated audio rather than on-screen text results in superior learning. This is especially significant when trying to explain a complex graphic, by reducing the workload on the brain as seen in figure 2.6. The auditory and visual channels are working in harmony allowing the learner to make connections. The audio narration can be in the form of previously scripted and developed podcasts or direct recording into the e-authoring software. It can also be very useful when designing for smaller mobile devices with limited screen real estate by leaving more display room for other content (Levert 2006). Obviously your audio should be of a high quality. Be mindful of accents and dialogue and how well they travel if your courses reach large geographical audiences.

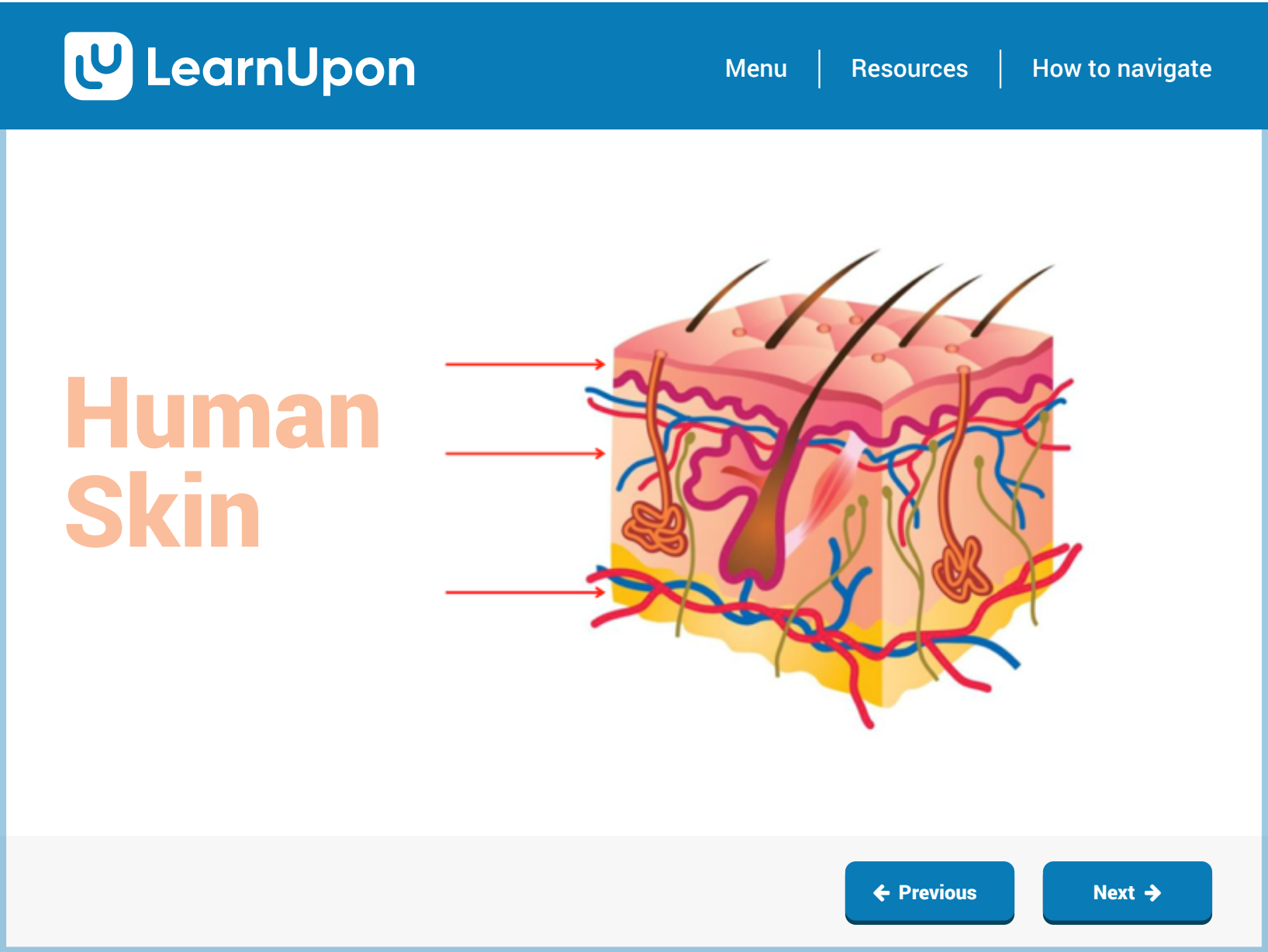


Figure 2.6: The Modality principle applied

**Audio:** The human skin is a complex organ and is in fact the largest body organ. It is comprised of several layers; the epidermis, dermis and subcutaneous as demonstrated by the arrows currently on your screen.

# The Contiguity principle

This principle advocates aligning text to corresponding graphics. If the intention is to use on screen text to explain the graphic they must share the same uncluttered screen space to allow the learner to make a seamless connection between both. Do not separate them, as this causes split attention. If you have a lot of text accompanying the graphic, consider the use of narrated audio. If you use audio, ensure it is in synch with the screen visuals. You could also use signals such as arrows to highlight a particular part of the graphic you are referring to as previously demonstrated in figure 2.6. If it is not possible or deemed necessary to use audio, create clickable layers, where segments of text are revealed at a time and correctly aligned to the part of the graphic you are trying to explain, see figure 2.7 for a simple example of this. This approach also allows the learner to interact with the content as opposed to being a passive recipient of it.

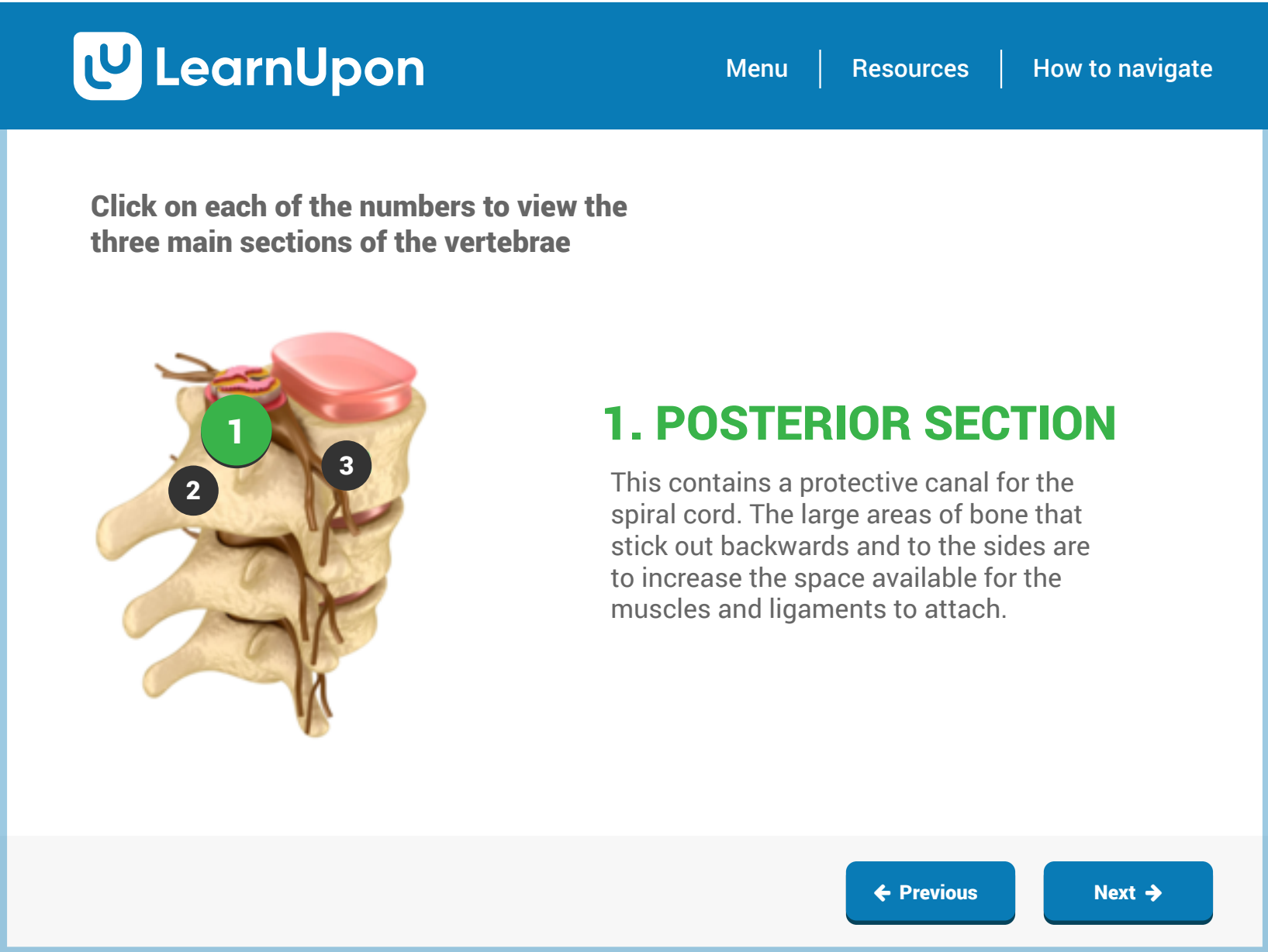


Figure 2.7: The Contiguity principle applied with a graphic and on-screen text

1. Leave clear instructions on how to access the on screen text.

2. By creating layers you're ensuring the text is correctly aligned to the graphic allowing the learner to make an easy connection without having to scan the screen.


Also if you are providing feedback relating to a graphic, ensure it appears on screen with the graphic to allow learners to make the connection, particularly if they have answered a question incorrectly.



# The Redundancy principle

Here it’s advocated to explain visuals with either narrated audio or on-screen text. If we revisit the idea of the dual channels and limited capacity, this principle makes immediate sense. By introducing audio the on screen text becomes redundant. Importantly learning is compromised as learners try to co-ordinate and integrate what they are hearing, seeing and reading leading to excessive cognitive processing. Figure 2.8 shows this principle in practice.

In essence, imposing extraneous cognitive processing limits cognitive capacity and compromises learning. Pick one, not both. However, like most things there are exceptions. Along with audio it can be useful to use ‘signaling’, a method of using occasional on screen text as a header, which is synched with the audio to highlight a particular part of the graphic being viewed as shown in figure 2.9.



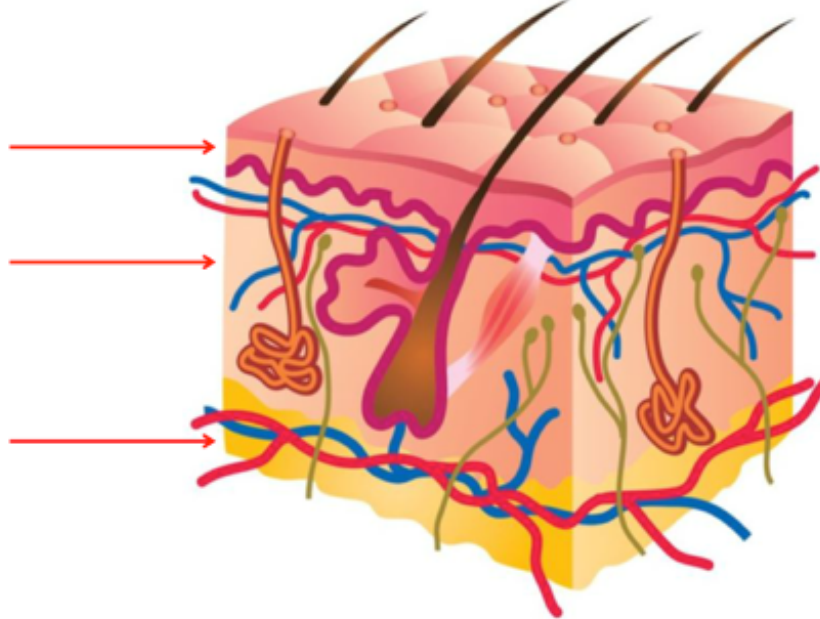
Menu | Resources | How to navigate

The human skin is a complex organ and is in fact the largest body organ. It is comprised of several layers; the epidermis, dermis and subcutaneous as demonstrated by the arrows currently on your screen.

Epidermis layer

Dermis layer

Subcutaneous layer




← Previous

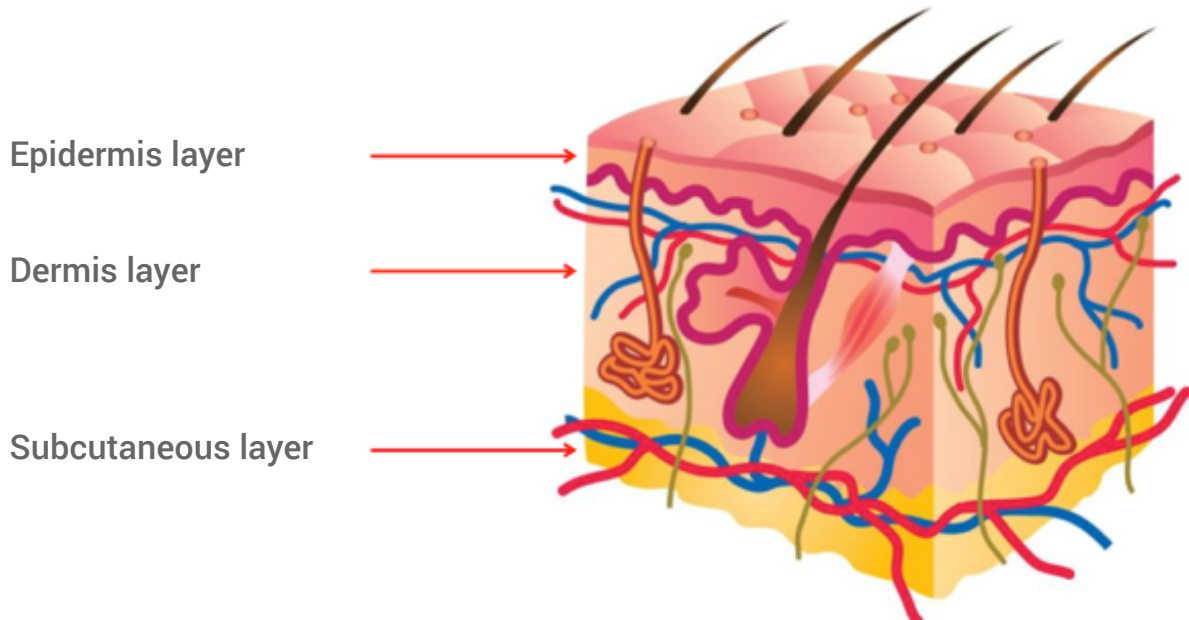
Next →

Figure 2.8: The Redundancy principle applied

**Audio:** The human skin is a complex organ and is in fact the largest body organ. It is comprised of several layers; the epidermis, dermis and subcutaneous as demonstrated by the arrows currently on your screen.



Menu | Resources | How to navigate



← Previous

Next →

Figure 2.9: The Modality principle exception

**Audio:** The human skin is a complex organ and is in fact the largest body organ. It is comprised of several layers; the epidermis, dermis and subcutaneous as demonstrated by the arrows currently on your screen.

# The Coherence principle

This principle focuses on the damage leveled on learning with the addition of unnecessary screen content. The golden rule is to keep your screen clutter free and allow the learner to focus on the material that is important. Avoid the temptation to add in ‘exciting’ or ‘interesting’ elements that look great but do not actually support your instructional goal. You can always add such elements as optional extras when the main body of the course content has been completed. It gives the learner control over content and ensures they view the necessary content to achieve the learning outcomes.

# The Coherence principle

If you look at figure 2.10 you'll see the inclusion of unnecessary pictures with links to audio and video and instructions all on one screen. In addition different styles of images have been used and different fonts, so the whole look and feel is disjointed. Remember your learner is seeking to make a connection between the graphics and text. Considering the ones in this example are 'decorative' and often in violation of the contiguity principle, you can start to appreciate how learning is compromised. The accompanying audio is not synched with the screen content so the learner is forced to look, listen and read in an uncoordinated manner. If this is the style of your opening slide and you have already induced cognitive overload through poor design, it doesn't bode well for your audience.



Figure 2.10: The Coherence principle applied

**Audio:** Welcome to this short 30 minute video outlining best practices in customer service. We have included several resources for you to choose from to get the best out of the course.

In essence avoid extraneous graphics, extraneous words (which can use up valuable screen real estate and can become particularly problematic on mobile devices) and extraneous audio (including background music, which may well grab attention, but there's limited evidence it positively impacts on learning). Keep the message clear and let the learner learn.

Figure 2.11 contains the same content as the figure 2.10 but is designed differently. The screen has been de-cluttered and the main points grouped coherently. Additional resources such as video and audio can be housed in subsequent slides as required. This should allow the learner to quickly grasp the point and proceed to the main course content. You will notice also there is an added feature to allow the user to enter their name. This leads us to the 'personalization' principle.



Figure 2.11: The Coherence principle informing design decisions

1. House video, audio and other additional sources in subsequent slides.



# The Personalization principle

As the saying goes, ‘it pays to be nice’. Being nice is what this principle is all about. It advocates adding a personal touch to your course, by using a conversational tone as opposed to a formal one. A formal tone can be transformed into a conversational one by using the second-person active voice. For example, instead of saying ‘after completing the course the learner will...’ change it to ‘after completing the course you will....’ A formal or passive tone is not compatible with how the mind works. So even the most formal of companies are made up of people who learn in similar ways to people working in less formal roles, cognitive processing transcends organizational roles when it comes to learning.

A conversational tone allows learners to engage more with the content. Conversational tones are also referred to as social cues. The use of social cues in eLearning activates a social response, which leads to an increase in active cognitive processing, and as a result learning occurs. It also makes the content relevant, which has been identified as a key element in the success of the uptake of eLearning courses. Adding the personal touch allows the learner to identify themselves and their role in what they are learning and can act as a motivator. In figure 2.12 this principle is put into practice. The use of the person’s name (a feature linked from figure 2.11) adds a personal touch to the course as does the use of ‘you’ and ‘your’. The slide also starts with acknowledging the person’s contribution to the organization and introduces an incentive to complete the course. These are small design decisions that can really have an impact on your target audience.

There is however a fine line between using a conversational tone, and sounding unprofessional. Too far in the other direction, like using slang or excessive humor, can appear to trivialize the course, so be sure to find the balance.

Even with the careful and conscious application of all the principles discussed thus far, your course can induce cognitive overloading if you have high volumes of complicated content to teach. In such an instance the next principle becomes key.



Figure 2.12: The Personalization principle applied

Use a conversational tone in your content to engage the learner.

# The Segmenting and Pre-training principles

Put simply this principle suggests the division of course content into manageable chunks. Even learners with naturally high ability or high levels of prior knowledge will mentally fatigue when faced with high volume content presented in a continuous stream. Segmenting or chunking your content into logical groups that are coherently connected makes better use of the short term memory. It also makes it easier for the learner to navigate through all of the content. The key is to ensure the learner knows where they are at all times, what they have to do and where they’re going next. We’ll examine this in greater detail in the ‘navigation’ section of the paper coming up shortly.


The pre-training principle is simply a clever way of getting the learner to engage in preparatory ground work before tackling a complex topic.

# The Segmenting and Pre-training principles

In figure 2.13 the learner is going to find out more about the role of ECHOs in diagnosing heart failure. In this example the learner has been asked to label the heart graphic in order to refresh their anatomy and physiology knowledge. Allowing them to interact with the content in this way is almost like priming their memory of existing relatable knowledge of the topic, and allowing them to make connections with the content to follow.

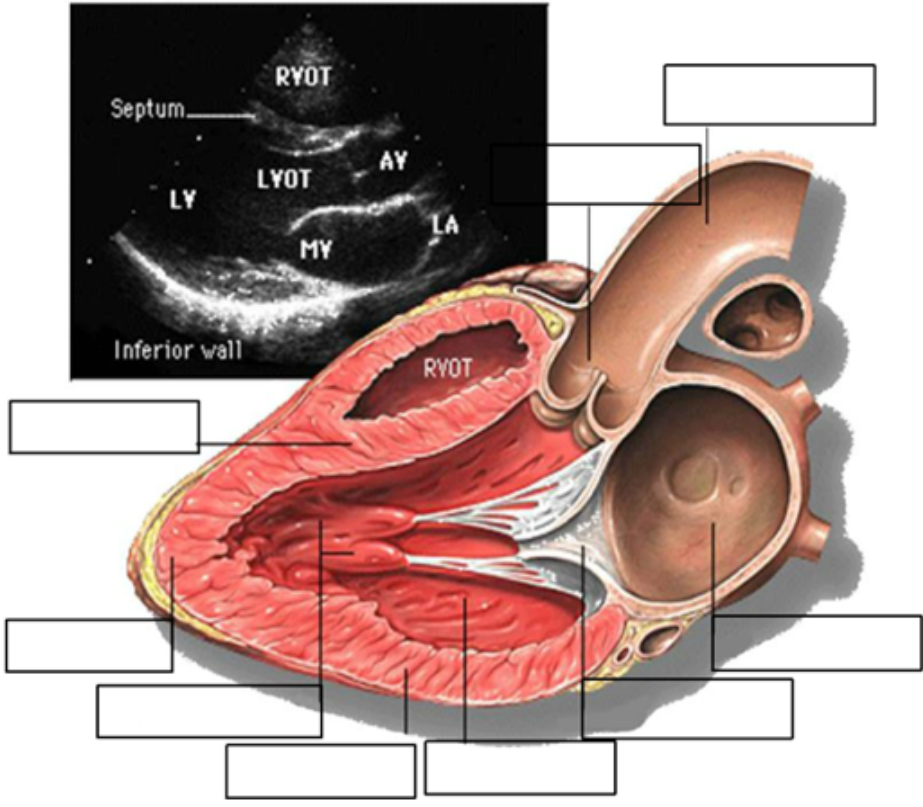
So that’s the ‘macro’ course design section completed. Hopefully that will help you understand some of the basic principles in course design and how they impact learning. In the next section, we’re going to have a look at the ‘micro’ elements of your course design.

Figure 2.13: The segmenting and pretraining principle applied



Menu | Resources | How to navigate

Before we examine the role of ECHOs in diagnosing heart failure, let’s just refresh your A&P knowledge....



Drag and drop the correct terms to the correct location on the diagram and press “submit”

Aortic Valve

Aortic Arch

Septum

Left Atrium

Apex

Mitral valve

Papillary muscle

Left ventricle

Inferior wall

← Previous

SUBMIT

# The ‘micro’ elements of instructional design

Having established the cognitive process and the guiding principles of course design let’s now examine the finer details of building your course and designing the individual slides. There are numerous factors that we’ll discuss in this section, from color choice, font choice, graphic styles, course style, navigation styles, and other elements.

## The use of color in course design

Learner engagement will be greatly determined by the ‘look’ of your course. Your choice of color is an important visual influencer in terms of design and warrants careful consideration from the outset. Colors evoke emotions, impact mood, and influence learner behavior and memory retention. Your choice of color should be an intentional design decision and fit the context of your course. What is the purpose of your course? Is it an induction course welcoming new employees? Is it a factual course? Are you teaching a complex process? Clarity around your overall course intent will help inform your color choice. The psychology of color is a book within itself but in this section we’ll touch on the main points of consideration when choosing a color scheme for your course to ensure it complements your message and course intent.

The color wheel in figure 2.14 depicts the original primary colors that we would all be familiar with, red, yellow and blue (RYB). As the picture shows secondary colors are obtained when the primary ones are mixed, and tertiary colors are obtained when a primary color is mixed with its nearest secondary color.

However with the advances of science and technology came a greater understanding of colors and light and the differences between additive and subtractive color mixing. Historically the RYB model was used for painting. However in the late 19th century it became clear that mixing of colored light in the eye is a different process than mixing dyes. In essence it was discovered that color perception by the human eye is best described in a different set of primary colors - red, green and blue, and hence the evolution of the RGB color model. The RGB model is used in the digital sphere, e.g. on monitors, TVs projectors etc. The technological advances with printing saw the evolution of the CMYK model, which is also used to describe the printing process itself (Wikipedia 2015). Figures 2.15a and 2.15b provide a brief overview of the RGB and CMYK color models and highlights the warm and cool colors and what they convey.

22



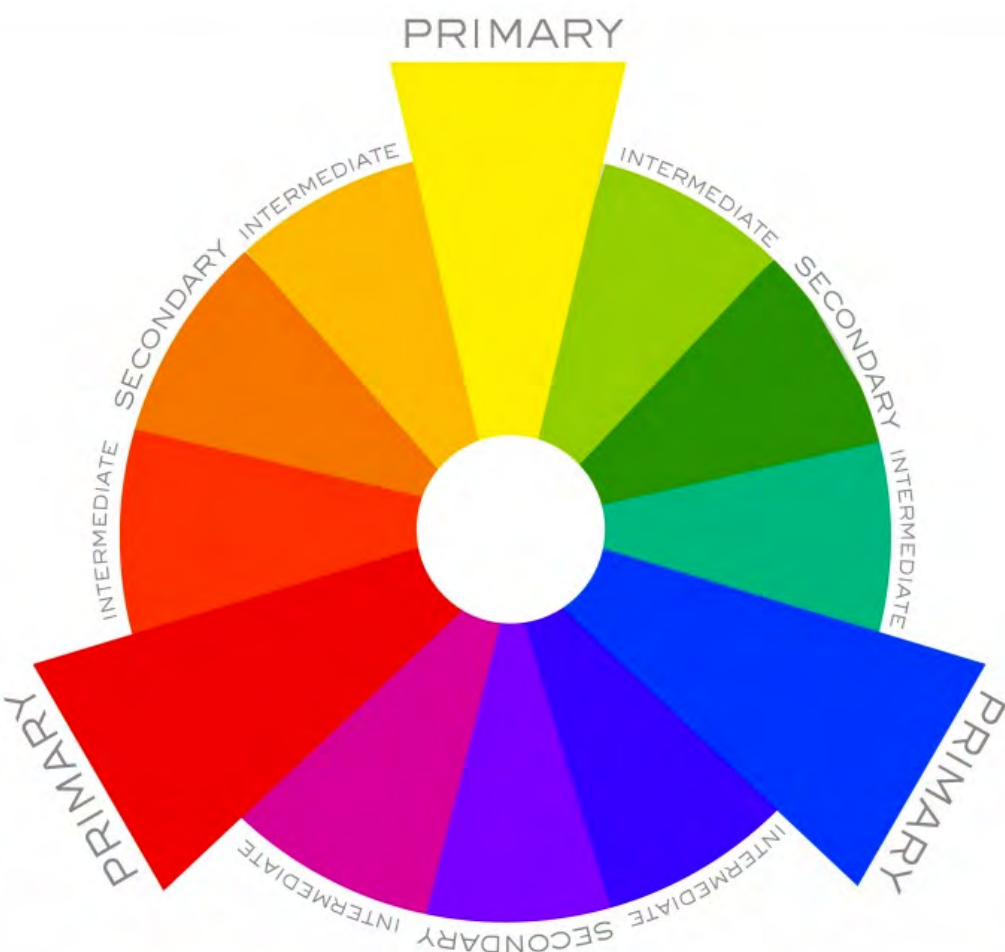


Figure 2.14: The RYB colour wheel

**RYB Color Wheel:** Combining 3 primary colors gives the 3 secondary colors. Combining a primary color with it's nearest secondary color gives you 6 tertiary colors. From those combinations come hues, tints, tones and shades.

**RYB Color Model:** Red, yellow and blue are the original primary colors we would all have been taught, and lend to a subtractive color model, in that when all colors are mixed together you get black. It is often referred to as the 'artist's' model. They are the colors from which all other colors are created by mixing them together.

Figure 2.15a: RGB, CMYK



**RGB Color Model:** Red, green and blue are often referred to as the 'digital' colors. They lend to the description of an additive color model, where when all colors are added together you get white. The human eye has three different types of cone cells that each sees a different color of light, typically red, green and blue. By mixing these colors together we create all the other colors our eyes can see. It is often referred to as the 'light' model.



**CMYK Color Model:** Cyan, magenta, yellow and K (representing black), are the primary colors used in this model, which are in fact the secondary colors of the RGB model. It is also a subtractive color model and the one used for printing. This model is used for printing as the K (black) in this case is both easier and cheaper to get a true black in than mixing red, yellow and blue. As the description would suggest, it is often referred to as the 'print' model.

Figure 2.15b: The warm and cool colors and what they convey



**Warm colors** are the approximate colors from red through yellow. These colors tend to be more welcoming and arousing. However overuse can result in a loud or overpowering feel.

**Cool colors** are the approximate colors from blue/green through blue/violet. These colors tend to be relaxing or soothing but overuse can result in a cold or clinical feel.

# The use of color in course design

To further expand on the use of colors and what they communicate to your learners take a look at the list below which explains each color and advises on when to use them.

**Red:** is a stimulant which can evoke passion and excitement and can really grab attention. When to use: to draw attention to key points. It's good for highlighting what should not be done.

**Blue:** encourages serenity and lowers the pulse and is considered the color of trust and peace. It is the most widely liked color. When to use: to calm learners when presenting complicated and overwhelming information.

**Yellow:** is a brain stimulant and promotes memory. It can be fatiguing on the eyes so use sparingly. When to use: to highlight points that should be memorised or are often forgotten. Good to use in assessment sections.

**Orange:** is considered the color of communication and optimism. It is an antidepressant and can be used as a stimulant that is warm and welcoming. When to use: when you're aiming to appear more personable to your learners, particularly with content that can be perceived as boring.

**Green:** brings tranquility and peacefulness. It's refreshing and easiest on the eye. When to use: whenever you want and as frequently as desired.

**Black:** elicits feelings of power, formality, mystery and fear. When to use: for fonts. It's often the best choice for the bulk of text (or a dark grey). It tends not to be really focused on or noted.

**White:** is seen as pure and clean. When to use: use it everywhere. White space can be very powerful and help learners to stay focused.

**Purple:** is the color of the imagination and is associated with royalty and luxury. It is often considered to reflect creativity and wisdom. It can be paired with other colors to emphasise a mood (with red it is a stimulant, with blue it is calming). When to use: it's a well rounded colour that can express lightheartedness and fun in learning, to sophistication in a company or brand.



# The use of color in course design

Understanding more about colors and how they can be perceived by learners should make it easier for you when choosing a color scheme to fit the context of your course. However it can still be a daunting task to choose an exact scheme or palette. Fortunately there are numerous color palette tools you can choose from when designing your course. If you don't already use a color assistive tool table 2.4 demonstrates a few. It doesn't advocate one over the other but you'll have fun just exploring them and applying them to your own course.

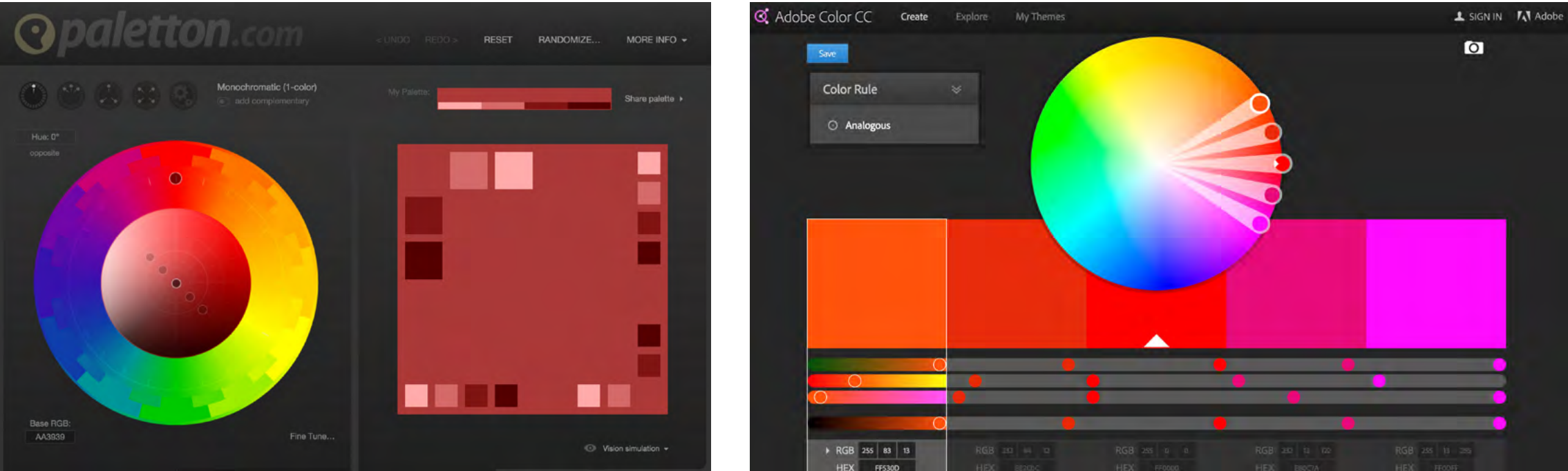


Table 2.4: paletton.com and kuler.adobe.com color palette tools

You may already have a company or corporate color scheme you use for your website and stationery. Replicating this scheme in your eLearning course materials can be an efficient use of your time. By doing this you create brand consistency and create a subconscious connection with your products. You may already have a specific brand color palette and font type that you use. Replicating this and saving it as a color scheme within your eLearning authoring software can save you valuable time in subsequent course developments. Figure 2.16 shows a screen shot of the LearnUpon website which uses a distinctive color scheme.

Using that screenshot you'll see in figure 2.17 how we created a color scheme and logo for an eLearning course using the exact color codes as those on the LearnUpon company website. You may decide on a very different look and feel but this will give you some ideas if brand consistency is important.

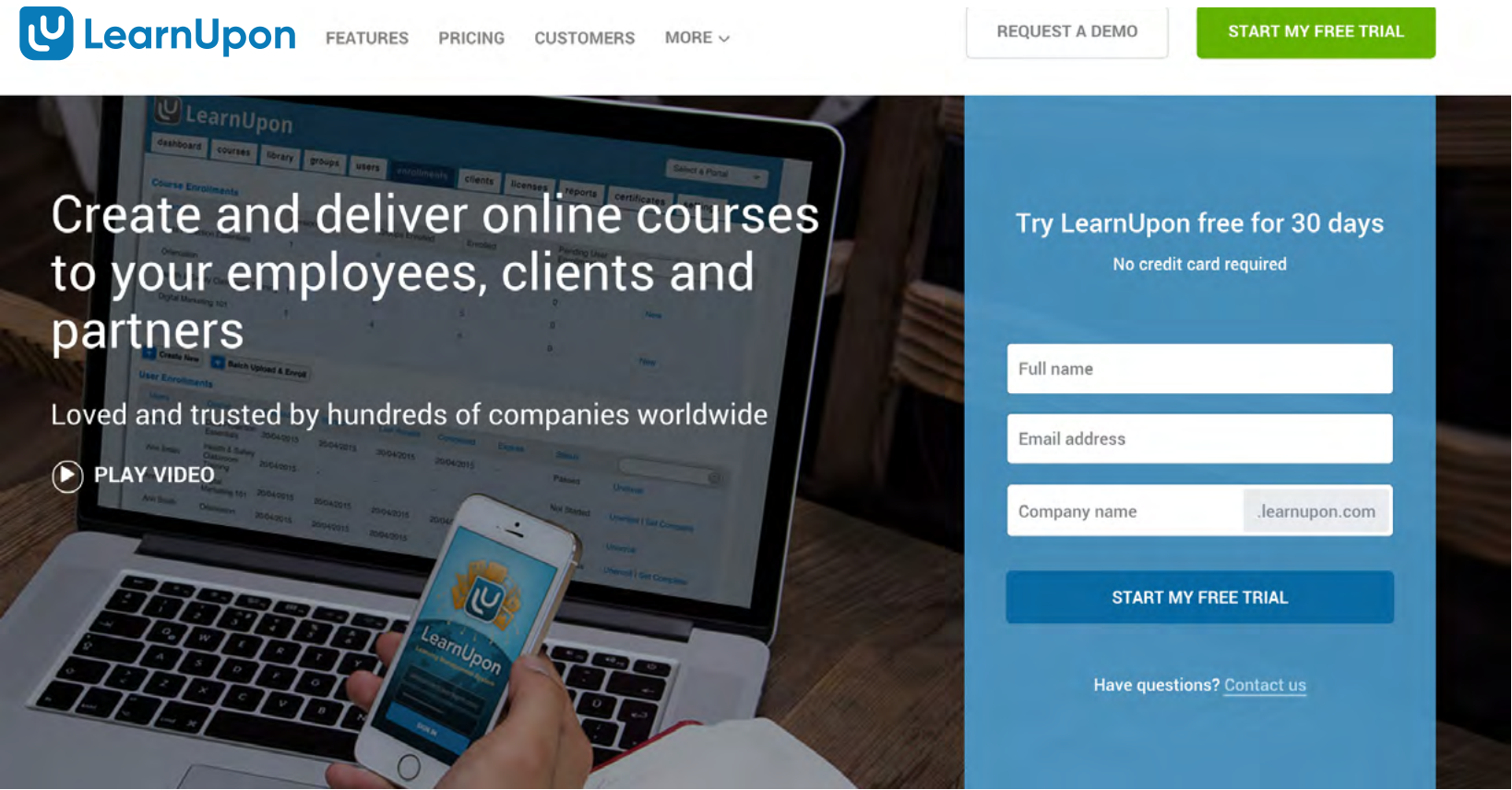
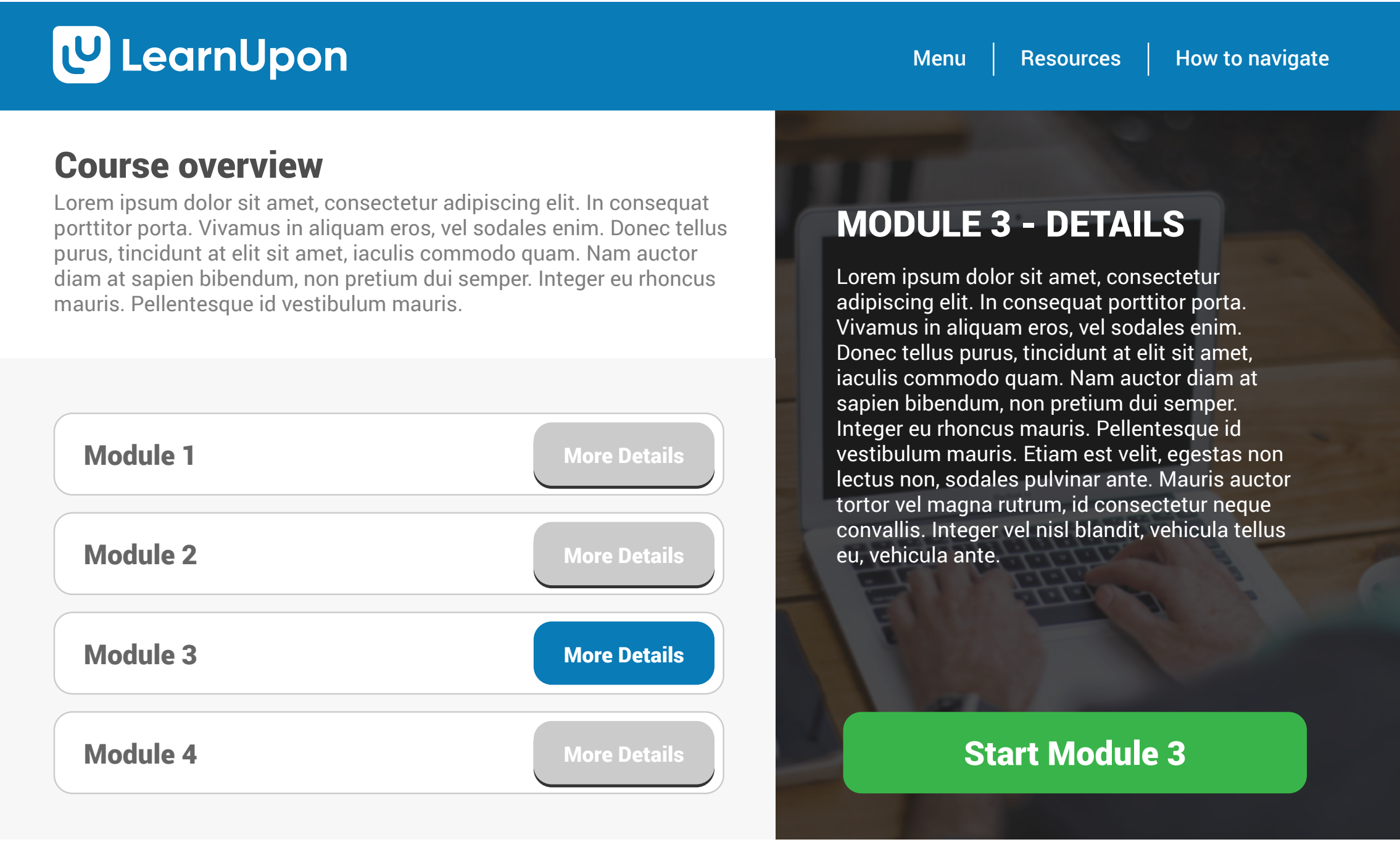


Figure 2.16: LearnUpon website screenshot

Figure 2.17: Replicating the LearnUpon website color scheme and structure for your course





# The use of fonts in course design

Determining the font you use may not seem like such an important design decision, but it is, especially for readability. Some fonts do have an intended purpose; display fonts would typically be used for headers or single sentences, and would become very difficult to read when used for paragraphs of text (Legault 2014). Choose fonts that work with your content. Ideally you should use no more than two to three fonts throughout your course and use a size 12 or higher for the main body text. Bear in mind though that a size 12 font will appear larger or smaller depending on the font you are using as demonstrated below:

Does this font look large enough to read?   Roboto 12pt

Does this font look large enough to read?   Verdana 14pt

Does this font look large enough to read?   Baskerville 16pt

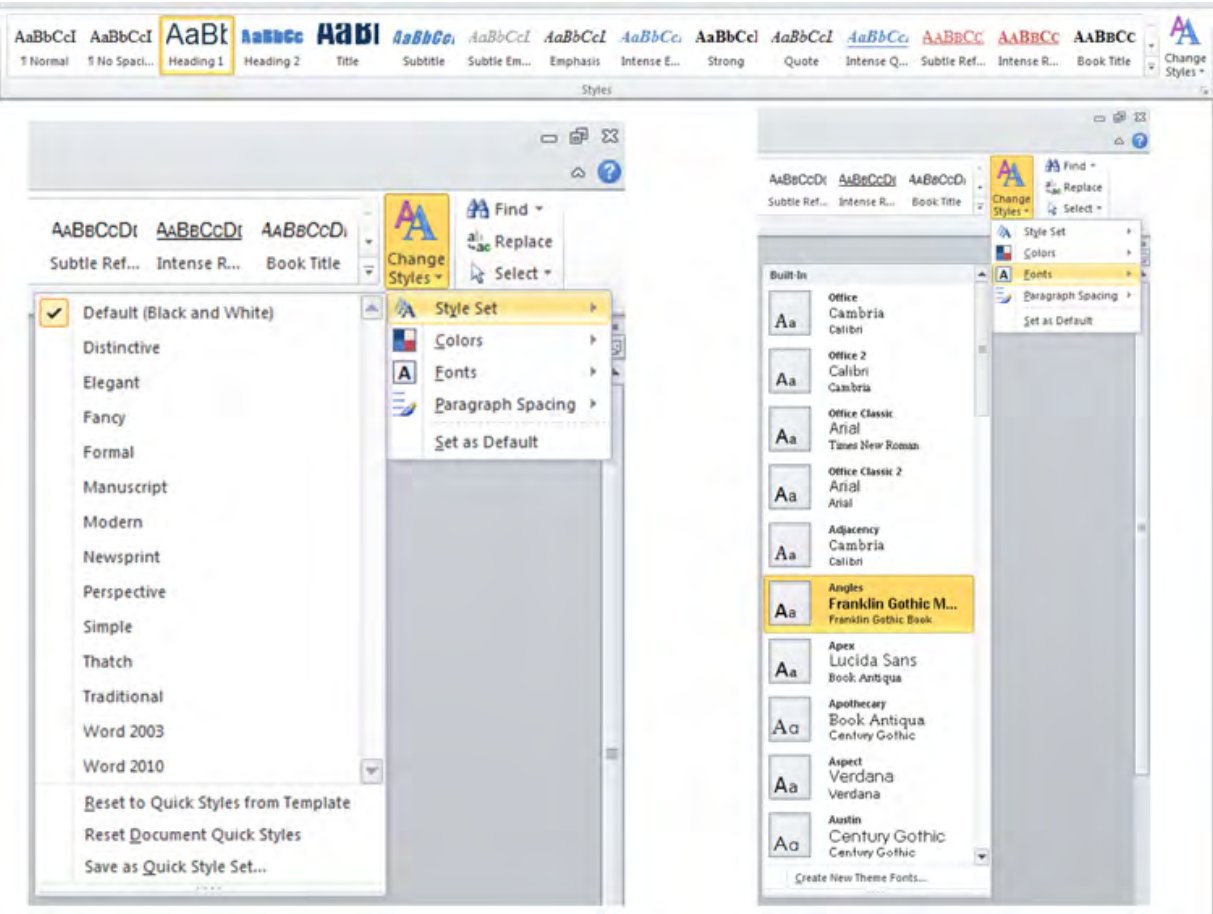
Does this font look large enough to read?   Myriad Pro 18pt

Does this font look large enough to read?   Gill Sans 20pt

You may decide to choose a decorative font for headings, coupled with a clean, simple one for your body text. Difficult to read text could suggest to learners that the content will be difficult. As with your choice of color scheme, your choice of font should be an intentional design choice. There are thousands of fonts for different mediums available (e.g. print, web, digital etc.) but this doesn’t mean you should use them all!

For anyone who uses Microsoft Word you are probably familiar with the built in font styles as seen in figure 2.18.

Figure 2.18: Font Style Tool in Microsoft



What you will notice about the Microsoft Font Style Tool is that it is all about hierarchy, which simply means your text styles are organized by priority. Your eLearning course may well follow a somewhat typical use of font types when organizing your written content such as:

**Heading 1/Title:** tends to stand out and be stronger

**Heading 2/Subtitle/Subheading:** are generally used to segment content

**Body text:** more concerned with readability/legibility. The more text you have the more you need to be able to read it

**Caption/call out/emphasis:** there are always certain places in the course or certain points you may need to emphasize. This can be achieved by using italics or bolding the point or using another color.

Assigning types, colors and sizes to this hierarchy in advance will ensure design consistency and speed up the process as you build your course.

Font choices help ensure you are setting the right tone for your course. The message below is repeated four times using different fonts. You will notice how the choice of font sets a different tone.

Welcome to this short course, outlining our company policies and procedures, we hope you find it informative.

Welcome to this short course, outlining our company policies and procedures, we hope you find it informative.

Welcome to this short course, outlining our company policies and procedures, we hope you find it informative.

Welcome to this short course, outlining our company policies and procedures, we hope you find it informative.

# The use of fonts in course design

We're not going to delve into the exact science of choosing fonts, and there are no right or wrong fonts to choose. Much will be determined by your course content, your subject, your audience, the specific device you're designing for etc. Table 2.5 outlines some of the font families and may help you in choosing a style for your course. Note that this is by no means an exhaustive list.

Serif	Sans Serif	Slab Serif	Script
Times New Roman	Helvetica	Frebham	Hipster script
Book Antiqua	Arial	Rockwell	Lucinda script
Georgia	Calibri	Salvo Serif	Sofia
Baskerville	Gill Sans	Chunkfive	Buffet script

Table 2.5: Font families

You should also be mindful when using CAPS. They can be very useful for heading or highlighting a point BUT OVERUSE CAN LOOK LIKE YOU'RE SHOUTING AT THE LEARNER. In addition bear in mind your style of font if used alongside graphics to ensure they complement each other style wise. Also ensure your choice of font color is compatible with your overall color scheme and most importantly that it can be read. In addition a fixed color font will appear differently when set on a different background so always ensure legibility.

Again design aspects such as font choice should be considered in advance of building the course. This essentially acts as a 'style guide'. You may decide to assign a color to your title and subtitle and agree a consistent font size and color for the body. For emphasis again go for a uniform look and agree on a numbering or bullet point design and be consistent.

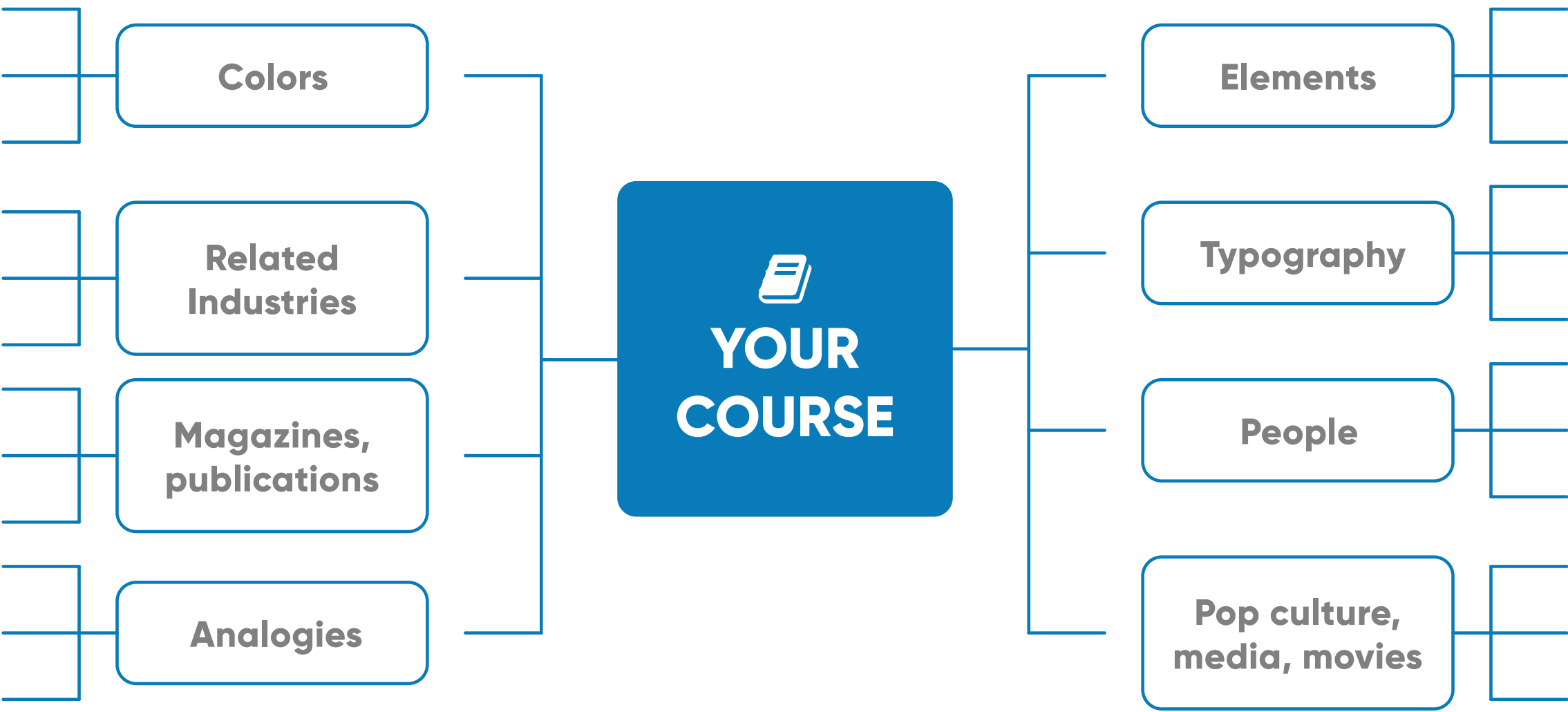
As with colors, understanding more about fonts should make it easier to choose the right ones to fit the context of your course. It can still be a daunting task but fortunately there are numerous 'font' websites that can help you with your decision: [www.fontsquirrel.com](http://www.fontsquirrel.com); [www.dafont.com](http://www.dafont.com); [www.myfonts.com](http://www.myfonts.com); [www.1001fonts.com](http://www.1001fonts.com)

# Choosing the style and feel of your course

Anderson (2011) identifies one of the major challenges often faced by designers is coming up with the right visual theme for a course. To overcome this he advocates identifying the common elements found in a particular topic or industry, that will help tie the course together, by using a 'Mind Maps for Visual Analysis'. Figure 2.19 shows his non-linear mind map for course design which pulls together some of the elements covered throughout this section (color, fonts, people and elements) plus additional ones such as media and pop culture, magazines, analogies, metaphors and related industries.

By using this you can start to get a sense of what your course should look like and the best way to present your content. Aligning this mind map with the principles discussed previously will ensure your course is visually appealing yet pedagogically sound.

Figure 2.19: Mind map for course design



Once you have designed your content, you then need to determine how the learner navigates it. Next we'll examine course navigation and how it impacts on learning.

# Course navigation

Whatever device you may be designing your course for, the learner should be able to logically navigate the content, and never find themselves lost. This book doesn't go into the design particulars for specific devices, but rather a more global look at course navigation. A lot of the eLearning authoring software such as Articulate or Adobe Captivate have a default built in navigational system, but you can override this and build your own system. It will often come down to personal choice.

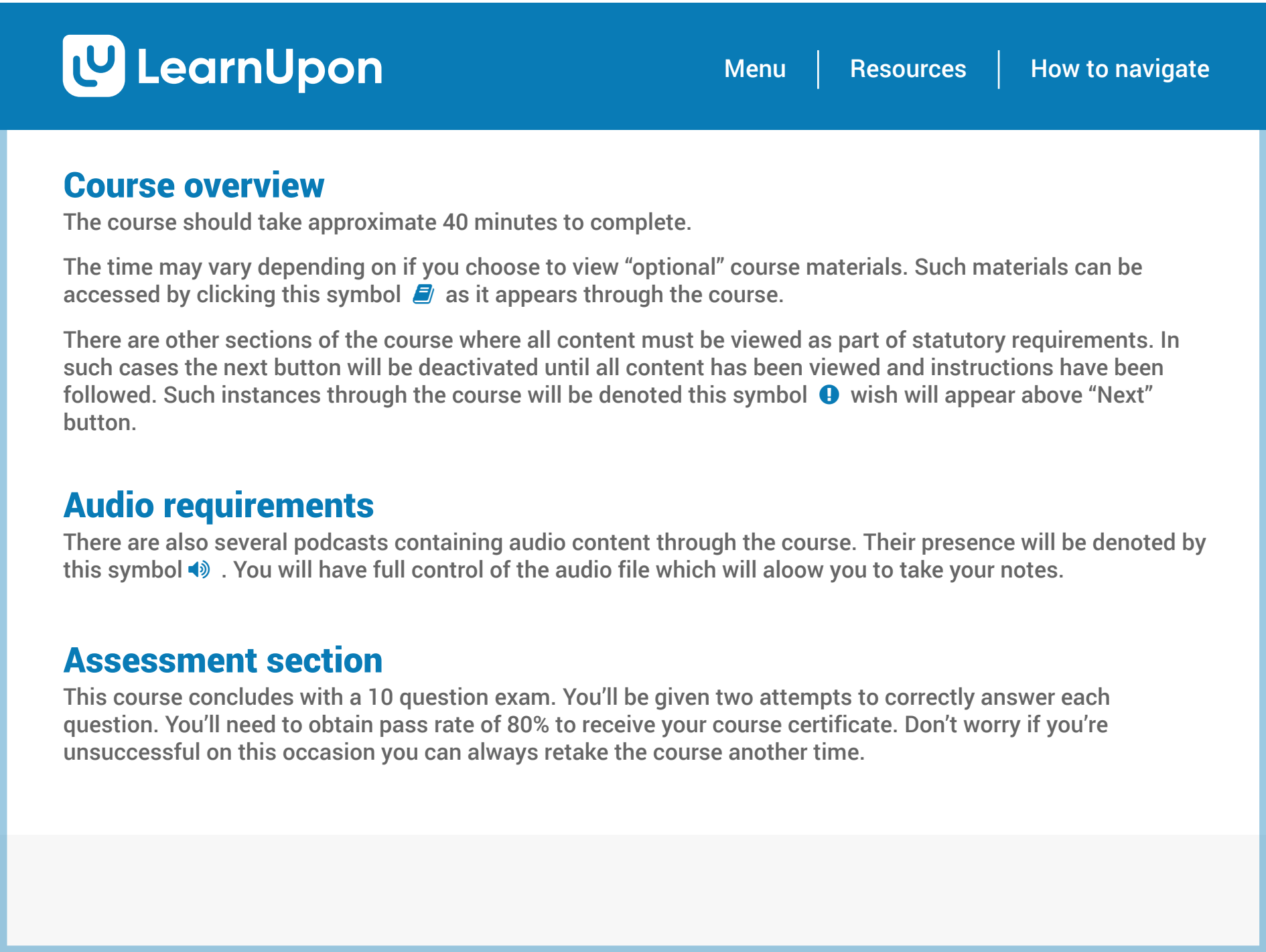
Your course navigation not only determines the flow of your content but also the amount of control your learner has over it. Ideally you want learners to control the course pace to suit their learning requirements. Your task therefore is to balance 'learner control' with 'program control'.



Establishing the balance can often be determined by the prior knowledge level of your target audience, or their specific role within an organization or institution. Ascertaining prior levels of knowledge can be difficult. When the SME is developing the content, he/she should establish what content is 'non-negotiable' for learners to cover, and what could be classified as 'optional', and then the instructional designer can create a way to facilitate this. This can then be made known to learners at the start of the course along with other things they may need to know as demonstrated in figure 2.20. This facilitates varying levels of prior knowledge and introduces an element of learner control (Clark & Mayer 2011).

The real navigation challenge lies with the instructional designer. For the user it should seem like a seamless transition from slide to slide. The more complex your course is, the more diligent you must be when designing the course. If for example you have a lot of scenario based learning in your course, it is vital the learner lands on the corresponding slide for their chosen option.

Figure 2.20: Advising learners what to expect and introducing learner control

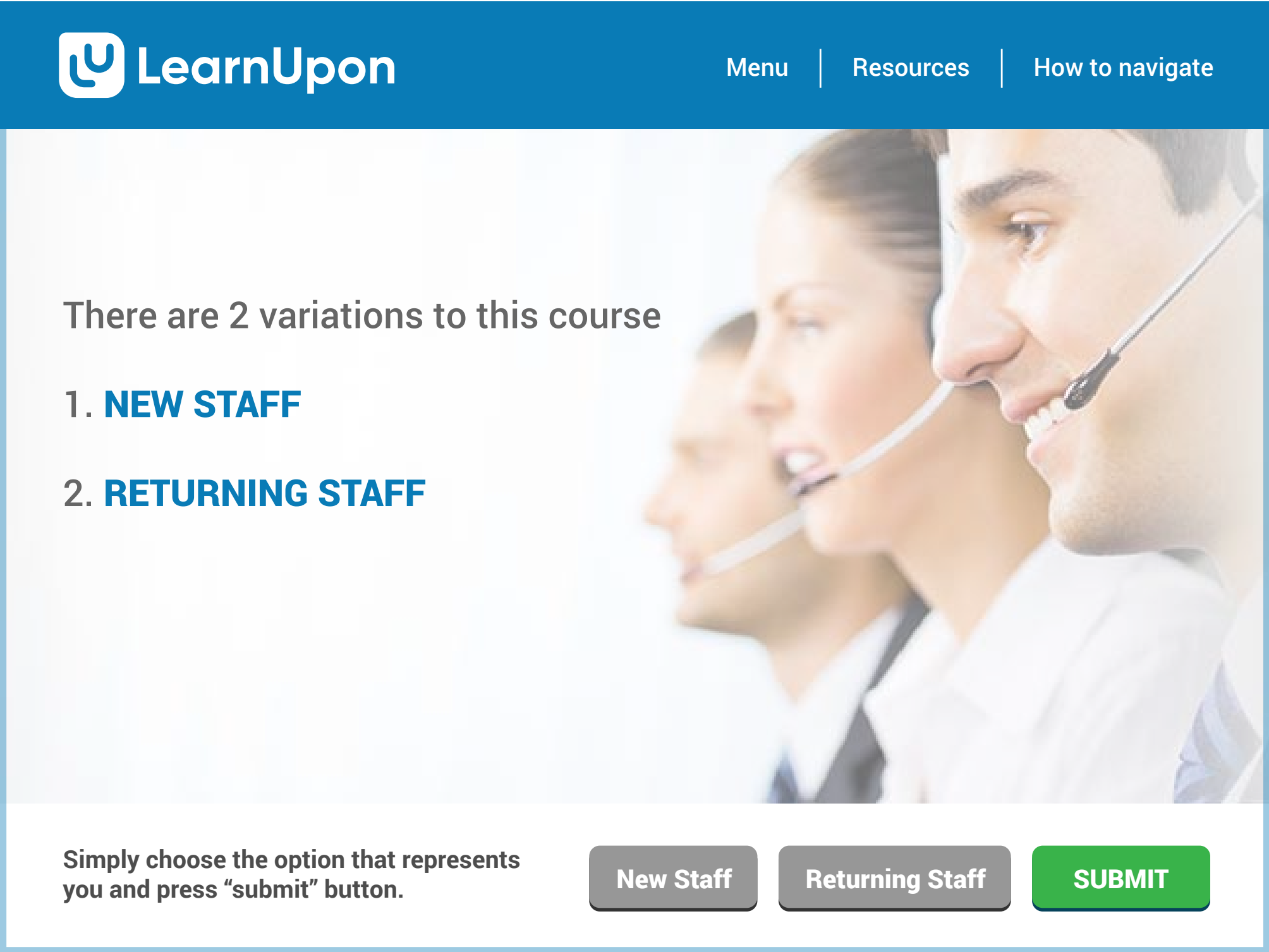


In terms of designing one course for different roles or levels within an organization where there is an overlap of core material, you could simply create a 'content option' or 'adapted paths', which will direct specific learners to content designed for their role or level. For example you may have an updated version of a previous course due to the launch of a new product or procedure. A percentage of the content may remain the same, which existing staff may have already completed, but all of the content will be new to staff who have never taken the original course. Figure 2.21 demonstrates a work around for this where learners choose the option that represents them and are then subsequently directed to the relevant content. Also, generally it is better practice to allow the user to have control over the 'next' button or arrow as opposed to having it set to auto advance.



# Course navigation

Figure 2.21: Creating content options or adapted paths



When it comes to placing content menus and adding navigational instructions, opinion is divided. There are different style options for the menu bar such as; horizontal bar navigation, vertical bar navigation, tab navigation, next-previous navigation, breadcrumb navigation, grid style navigation, or even a combination of these. You may also choose to have a visible side bar menu as seen in figure 2.22 or hide the menu away but have it accessible to learners if they need it throughout the course as shown in figure 2.23. There is no right or wrong way here and it may often be decided on what looks better or what learners prefer if you are in a position to obtain user feedback prior to the course launch.

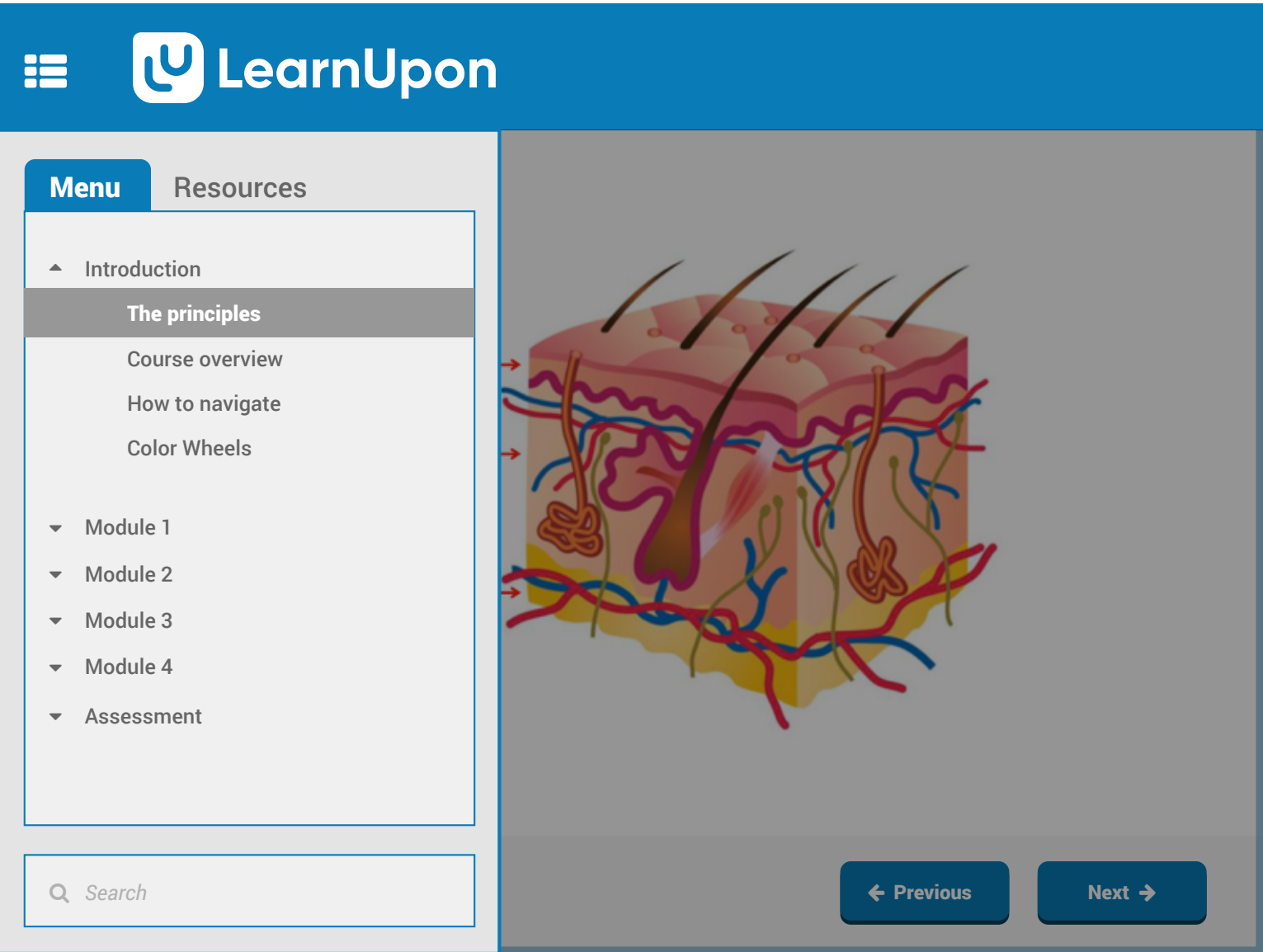
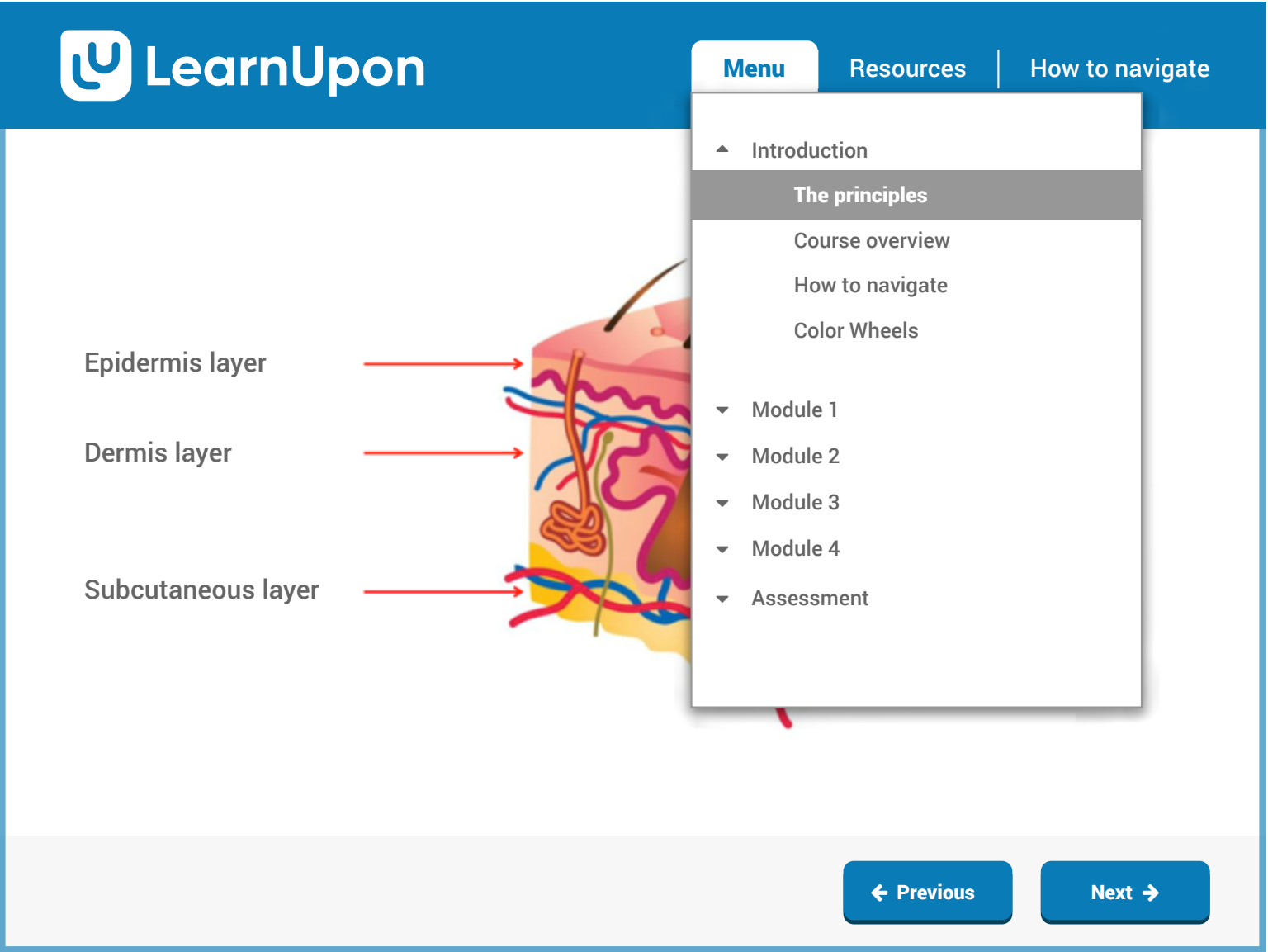


Figure 2.22: Sidebar menu

1. The sidebar menu is visible on-screen.

Figure 2.23: Sidebar menu removed and menu placed in the top right corner.

1. The sidebar menu is displayed when the learner clicks the Menu option in the main navigation bar.





# Course navigation

In terms of adding in instructions on how to navigate there are generally four accepted options:

- 1. Include instructions at the beginning
- 2. Include optional instructions at the beginning
- 3. Include instructions throughout the course
- 4. Don't include any instructions (LaMotte 2015)

The better you know your target audience the easier the decision. If you don't their level of comfort or familiarity with technology, the best solution may be to design your navigation instructions as an optional viewing point as demonstrated in figure 2.24. Here all the navigational instructions are a click away on two purpose built layers within the slide. The learner can make the decision if they need to view the instructions or simply press next if not. This information can also be accessed by placing it in a purpose built slide accessible any time throughout the course as demonstrated.

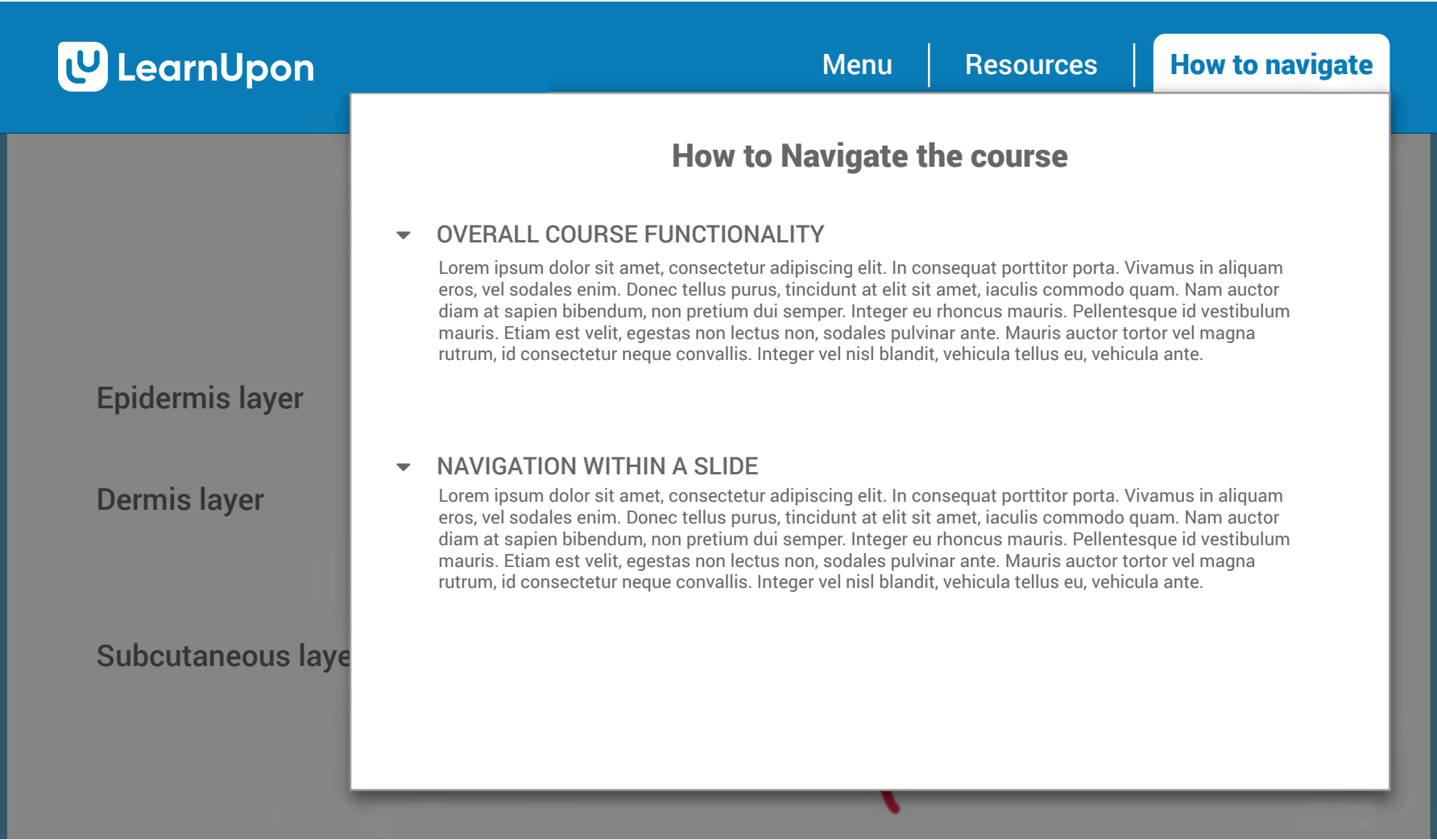


Figure 2.24: Instantly accessible navigation instructions

So as you can see there is no one size fits all approach to designing course navigation. Below are just a few summary points to bear in mind to ensure a seamless experience for your intended audience:

- Keep it simple, consistent and to the point. If your course takes a lot of explaining you should go back and examine the interface
- Try to maximize learner control over content by providing options
- Let the learner know what to expect throughout the course
- Don't bury navigation buttons in 'clever' designs that may only serve to confuse learners
- Beware of using narrated audio, it dictates the pace for the learner and decreases their sense of control
- Explain the navigation features early on. If it appears late in the course intro it's maybe not all that necessary if the leaner has got that far unassisted
- If you plan on creating multiple future courses for the same audience, stick to a similar layout and navigation and the need for instruction will lessen
- If you do have additional resources that the user can download, or a glossary, be sure they know where to find them

A clear and logical navigation system is the best way to complement your content and maximize learner engagement. The next big step is where to host your content so that learners can actually access it.

Section 3

# The Learning Management System

# Selecting a Learning Management System

Now that you have built a high quality and pedagogically sound eLearning course, you need to make it accessible to your learners. This is where the learning management system (LMS) comes into the picture. Your choice of LMS is crucial to the success of your eLearning strategy. At a basic level your LMS manages the administration, delivery, tracking and reporting of learner behavior. The right LMS will save you valuable time and resources.

However finding the right LMS is not an easy task. For a start there are hundreds of systems to choose from so it's understandable that you may feel overwhelmed by the work involved in selecting an LMS before you've even begun.



Foreman (2013) suggests the selection process should involve the following five major steps:

**1. Analyze your needs:** Consult with relevant stakeholders, colleagues and where applicable focus groups to fine tune your needs. Are you a first timer in the LMS market? If so, how do you currently manage organizational learning and what problems do you currently experience that you expect the LMS to address? Or are you looking to move from an existing LMS? If so why, and what are your new requirements? Be sure to assess any technical standards with your IT department or provider. This should help to inform your strategic, operational and technical drivers to narrow down your LMS requirements.

Ask yourself these questions:

- What is our current learning and development (L&D) strategy and objectives?
- *What is the skill level of the L&D team tasked with choosing the LMS?*
- What is the feedback from the L&D team concerning our current training strategy?
- What are our technical capabilities and limitations?

**2. Define requirements:** The clearer you are about what you require the easier it will be to evaluate options and choose the correct LMS for your needs. Focus on what your learners and administrators need to be able to do with the LMS. This will differ massively from organization to organization. On average anything between 30 to 60 requirements would be the right level of detail. Requirements generally fall into the following categories: functional, technical and cost. Prioritizing requirements is also important as you can align them to each of the LMS products and features, which will help inform your purchase decision.

Ask yourself these questions:

- What are the essential features and functions that our administrators need? List these requirements from high to low priority.
- What are the essential features and functions that our learners need? List these requirements from high to low priority.

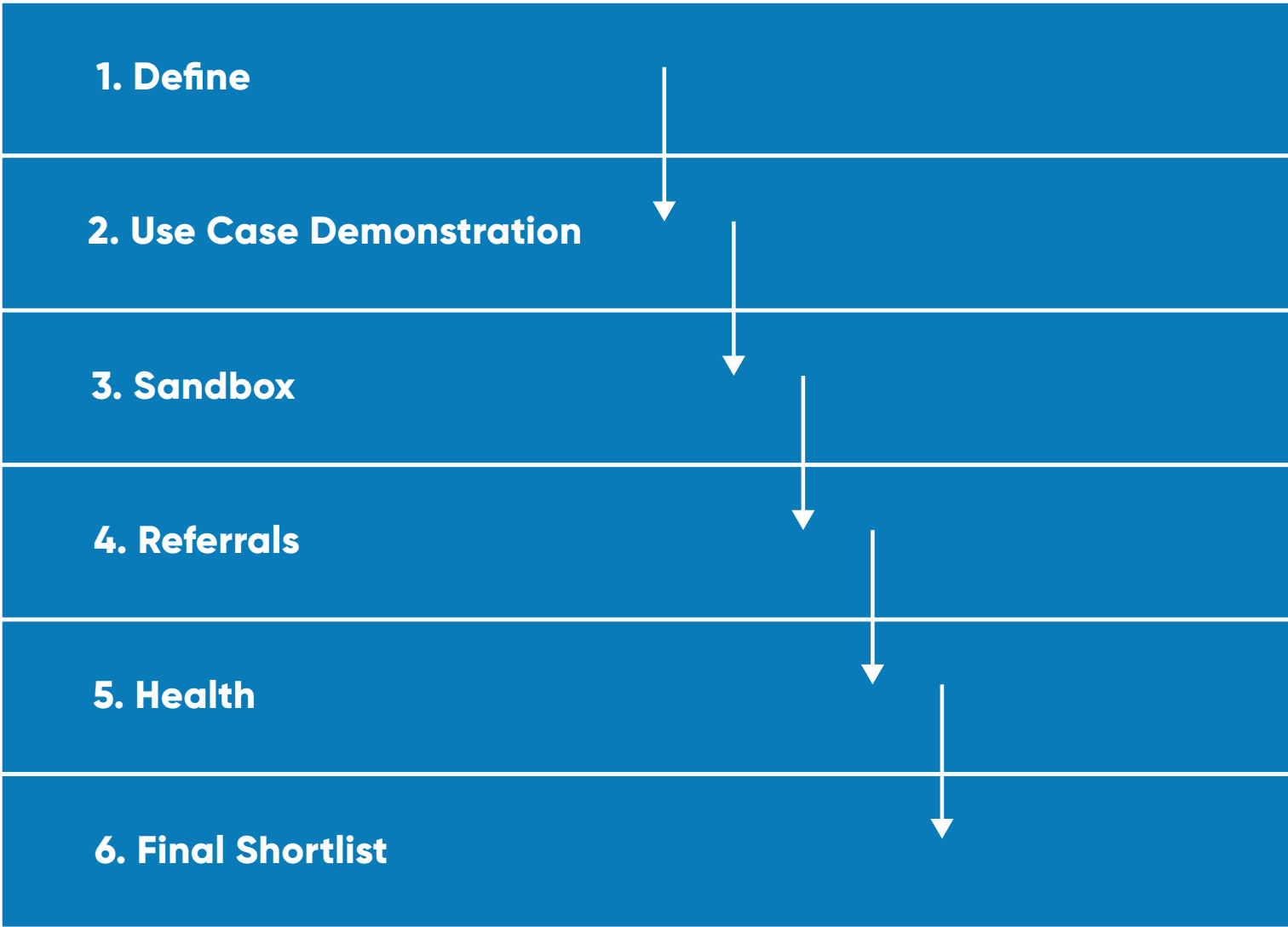
**3. Product vetting:** Narrowing choices with so many LMS products on the market can be challenging. Adhering to the preceding steps will make it easier. To make the process easier still, identify 8-10 distinctive requirements (e.g. multilingual support, or products that comply with specific accessibility regulations or licensing costs) that will allow you to rule out non-qualifying LMS products. Establishing your vetting criteria will allow you to focus your search and align specific needs to more suitable products.

Ask yourself these questions:

- Does the LMS offer the essential features that I need?
- What are the data tracking capabilities of the LMS?
- *What do I know about the experience or background of the LMS vendor?*
- What customer support is offered with the LMS?
- Can they provide me with a free trial and/or live demo?

# Selecting a Learning Management System

**4. Product evaluation:** This process operates like a funnel, ruling out non-qualifying products with each step. The figure below demonstrates these steps. By adhering to each stage in this approach you will achieve the best results.



Adapted from Foreman (2013). For more detailed information [click here](#).

**5. Select a product:** You can position your organization to negotiate the best price and terms by selecting two to three finalists, any of which will meet your needs. Compare the vendors on the following: pricing, support options and length of time to launch. Don't be afraid to contact each vendor to clarify any aspect of these areas before making your final decision.

# Resources for selecting an LMS

The LMS selection process in its entirety can be lengthy. LearnUpon has focused on making the selection process more efficient by offering companies free trials of the LMS, access to dedicated account managers and customer success specialists, and eliminating setup costs. Investing your time wisely will ensure you make the right decision and purchase a product that meets your needs and allows you to successfully achieve your organizational learning outcomes. To help you with this process we've put together the following list of useful resources that will make selecting an LMS easier for you.

- [10 things to consider when selecting an LMS](#)
- [Self hosted or cloud LMS? 5 questions to help you decide](#)
- [The world is built for average but your LMS shouldn't be](#)
- [How to select an LMS vendor that's here to stay](#)
- [7 essential questions about LMS pricing](#)
- [The value of customer support to an LMS](#)
- [How to make an LMS free trial work for you](#)



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Area 1: Your Business Readiness

<div>Circle one</div> <div>1. How well is your company using (Internet and intranet) technology to run its business?</div>	0	1	2	3	4	5
	Few, if any of our core business processes are web-enabled.		One or more core business functions are web-based, but most internal work and communication is done offline.		Most core business functions are web-enabled, and most internal work and communication, even by senior management, is online.	
<div>Circle one</div> <div>2. How prepared (skills, knowledge, motivation) is your workforce to compete and win in the high-tech, new economy?</div>	0	1	2	3	4	5
	Most of the workforce is new to the new economy. Many are not computer literate. We have a lot of work to do.		Our workforce is becoming more high-tech all the time. However, there are still significant pockets of people who are not prepared.		Our workforce is quite well prepared to succeed in the new economy. I would consider us technologically advanced.	

Area 2: The Changing Nature of Learning and E-Learning

<div>Circle one</div> <div>3. How does your organization define “e-learning?”</div>	0	1	2	3	4	5
	We tend to define it mostly in terms of traditional CBT; new ideas about e-learning are hard to sell.		E-Learning is new to us so there is an opportunity and an openness to broadly define e-learning; we’re working on it.		We have a broad-based definition of e-learning that includes alternatives such as knowledge management, performance support and other web-enabled distance learning approaches.	
<div>Circle one</div> <div>4. How will your organization overcome any bad prior experiences you and others have had with technology based learning?</div>	0	1	2	3	4	5
	We have a lot of convincing to do, there’s a lot of bad feeling regarding prior experiences; we tend to be blamed for past disappointments. Some people are using past experiences as reason for not getting into e-learning.		We haven’t done much in technology-base learning so there’s very little prior experience; there doesn’t appear to be any feelings one way or the other.		Our workforce is quite well prepared to succeed in the new economy. I would consider us technologically advanced.	

**Rating Scale**  
0 = No evidence of any positive initiative or result in this area.  
1 = Little evidence, but there are potential improvement opportunities.  
2 = Initiatives underway but progress is fleeting.  
3 = Initiatives underway with some sustainable success probable down the road.  
4 = Reasonable success achieved; now the challenge is to keep it going in the right direction.  
5 = Approaching sustainability – perhaps even a best practice.

<i>Circle one</i>	0	1	2	3	4	5
	Access to the web is a problem; we are still building out our infrastructure.		We are working with I.T., the CIO and business leaders to assure that people can access the web for learning as well as key business applications.		We have already attained almost universal access in office, field, home environments.	
5. How much access do people have to the web (anyone, any time, anywhere)?						
<i>Circle one</i>	0	1	2	3	4	5
	We don't think of informational needs as within our responsibility; we have a focus on instruction only.		We are beginning to become involved in the delivery of information as a form of learning; it's difficult, but we are making some progress in selling this concept.		We are actively involved in both instructional and informational programs; we are constantly evaluating learning needs to determine which is most appropriate for a given situation.	
6. Do you differentiate between instructional needs (training) and informational needs (knowledge management), and do you make the right decisions about when to use each?						

Area 3: The Value of Instruction and Information

<i>Circle one</i>	0	1	2	3	4	5
	Pretty weak. We have some people who have basic skills but these skills are neither widespread enough nor deep enough to make a fundamental impact.		Growing. We are aware of the increasing importance of these professional skills and we're spending the time and money to significantly upgrade our skills through hiring and/or retraining.		Strong. We have established a strong competency in these areas and are committed to maintaining state-of-the-art expertise in these fields.	
7. What is the level of your organization's expertise in instructional and information design?						
<i>Circle one</i>	0	1	2	3	4	5
	We're struggling with this. In most cases, classroom learning is the default delivery approach. We still oversell e-learning to people who are predominately classroom focused.		We have demonstrated the viability of a combined elearning and classroom strategy, but it's still a tough sell.		We have implemented a balanced approach between e-learning and classroom learning – our value is making the right decision.	
8. Is your organization ready to move beyond a predominant reliance on classroom training to a more balanced approach with e-learning?						

**Rating Scale**  
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1 = Little evidence, but there are potential improvement opportunities.  
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4 = Reasonable success achieved; now the challenge is to keep it going in the right direction.  
5 = Approaching sustainability – perhaps even a best practice.

Area 4: The Role of Change Management in Building a Durable E-Learning Strategy

9. Does senior management support e-learning?	01		2	3	4	5
	We don’t have much access to or support from senior management regarding elearning. They don’t appear to be interested.		We have access, but maintaining their interest and gaining long-term support for this new approach to learning is difficult.		We have access and growing management commitment; we work on it every day.	
10. Does your organization have a change management plan for introducing e-learning in your company?	01		2	3	4	5
	We have no change management plan; unfortunately, we tend to move unsystematically from event to event.		We are developing a change management plan, but we’re not sure if it will work or if it’s complete.		Change management is an integral part of our deployment strategy.	
11. Can your organization demonstrate the business benefits of e-learning?	01		2	3	4	5
	Not really; we are way behind in demonstrating business benefits. We tend to hype the technology and multimedia elements rather than performance benefits. Our measurements are mostly “customer satisfaction” related.		We are working to demonstrate business benefits of e-learning, and we’ve made some progress in cost, quality, service and speed metrics. But there is a long way to go.		We have been successful in demonstrating business benefits of e-learning and are moving to scale up our capability in this area.	

Area 5: How Training Organizations Must Reinvent Themselves to Support E-Learning

12. Does your organization have a plan to help the training function reinvent itself for the digital age?	01		2	3	4	5
	We don’t really have a plan to change the training organization, although we know we need one.		We are building e-learnring components within our organization, but haven’t given much thought yet to helping our people change.		We are implementing both elearning and change management strategies to help our people adapt to the changes that are coming.	
13. Is your training organization’s economic model predominately dependent on selling seats in the classroom?	01		2	3	4	5
	Pretty much; our budget is derived from tuition. Without tuition, we’d be out of business.		We know we need to abandon a model that focuses exclusively on selling seats in the classroom, but we haven’t done much about it.		No, we are moving to an investment model that involves our stakeholders in decisions about how we spend our money and were it comes from.	



14. What is the climate in your organization to learning in alternative locations, especially the work site?	Circle one				
	0	1	2	3	45
	There is a great deal of resistance to learning at the work site. Many people do not view learning as important as work, or don't see how they're related.		There is an understanding that work and learning go hand-in-hand, and that learning can take place anywhere. However, people still need support to find time to learn, free of interruptions.		We are moving quickly to a culture that accepts elearning at the work site and we're working with employees and managers to create the right environment for learning to take place.
15. Is your organization willing to allow e-learning to thrive, perhaps at the expense of some of the more traditional parts of the training organization?	Circle one				
	0	1	2	3	45
	We're willing to implement elearning, but if it cuts too far into our classroom business, we will have to re-evaluate – our classroom business is essential to our survival.		We're willing to implement elearning only in areas that do not conflict with our classroom business.		We're well aware that elearning will reduce our classroom business, and we're prepared to re-allocate our resources accordingly.
16. How prepared is your organization to invest in, and incubate e-learning for several years in order to get it firmly established?	Circle one				
	0	1	2	3	45
	This will be a very difficult sell, as our firm's budgeting process is on an annualized basis. If we don't spend it in the year, we lose it.		We are working to set up a process that will fund elearning on a multi-year basis, but we still have to convince senior management.		We have successfully restructured our budgeting process, with senior management support, to allow long-term funding of elearning.

Area 6: The E-Learning Industry

17. How prepared is your organization to deal with a large and increasingly complex e-learning marketplace?	Circle one				
	0	1	2	3	45
	We’ve been primarily internally focused; we really don’t know much about what’s going on in the industry.		We’ve been purchasing products and services from the e-learning industry for years, but mostly from our traditional vendors. We really need to update our industry knowledge.		We are devoting more time and resources to getting the most out of the increasingly sophisticated e-learning industry.

**Rating Scale**  
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5 = Approaching sustainability – perhaps even a best practice.

<div>Circle one</div>  <b>18. Does your organization have a good handle on what it is buying in the e-learning marketplace – can it differentiate quality products and weed out redundancies?</b>	0	1	2	3	4	5
	Purchasing is haphazard and uncoordinated. We have no strategy for evaluating quality and avoiding redundancy. It’s extremely difficult to even know who is buying what.		Everyone involved recognizes the need for better vendor management and more coordinated purchasing. We’re just not there yet.		We have implemented an agreed upon approach to vendor relationships and purchasing, and we are achieving increased cost savings and experiencing less redundancy	
<div>Circle one</div>  <b>19. Is your organization prepared to outsource some of its functions and manage them externally so that it can concentrate its resources on more valuable areas?</b>	0	1	2	3	4	5
	We’re not prepared to significantly outsource any of our major functions.		We are experimenting with outsourcing some of our organization’s functions so that we can focus on more valuable areas.		We have included outsourcing as a key component of our strategic plan – how we will manage the organization in the future.	

Area 7: Your Personal Commitment

<div>Circle one</div>  <b>20. How committed are you, personally, to e-learning? Are you ready?</b>	0	1	2	3	4	5
	I really haven’t paid much attention. Besides, I’m not totally convinced that this is the right way to go for our organization.		I believe this is the right way to go, but I don’t have enough capability to move forward towards implementing an e-learning strategy.		I am totally committed to elearning and have taken the time to educate myself with the major issues. I am ready to implement durable elearning strategy.	

**Rating Scale**  
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1 = Little evidence, but there are potential improvement opportunities.  
2 = Initiatives underway but progress is fleeting.  
3 = Initiatives underway with some sustainable success probable down the road.  
4 = Reasonable success achieved; now the challenge is to keep it going in the right direction.  
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## How to interpret how ready you are:

Each item in this survey is as important as any other, so a total of your responses is less meaningful than your own analysis of each individual item. Here are some things to think about when you review your responses:

Any item with a response of 0-1 could be a show-stopper. The low rating may indicate resistance to change, and/or a lack of readiness/capability on the part of people, infrastructure or the organization as a whole. Here is where you should concentrate your change management efforts to move the rating further to the right; your eLearning strategy won't be successful until you do.

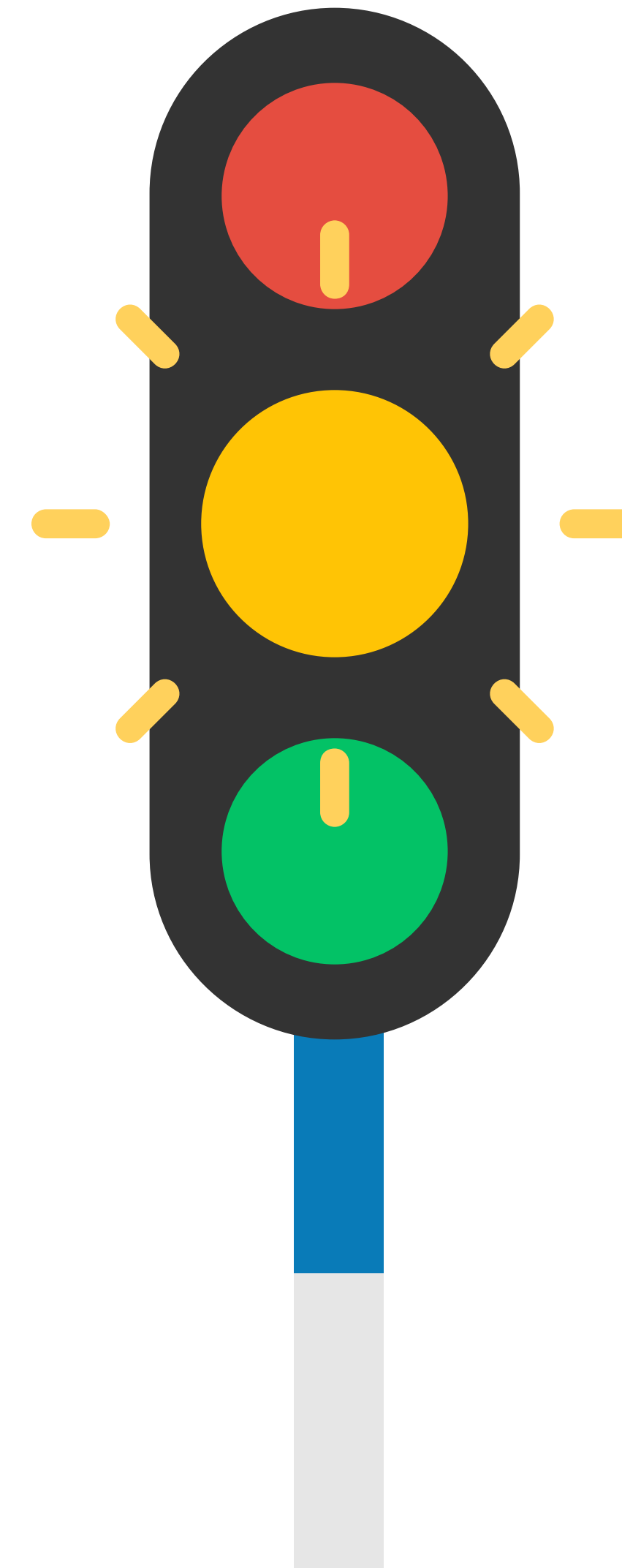
Any item with a response of 2 or 3 indicates that progress is being made, but more effort would be worthwhile to avoid any disruption of your momentum or other unforeseen potholes. These are areas where opportunities for improvement may be easiest.

Any item with a response of 4 or 5 indicates considerable progress. These are your success stories. Use them to help bring up the other areas of your strategy. For example, if you have strong senior management support, but you've sensed too much focus on technology alone, you might want to develop some communications from supportive managers that will help people understand the broader issues beyond the technology.

The results of this survey can be a catalyst for important discussions within your organization on changes that are necessary to launch and maintain successful eLearning initiatives. Use it to surface important issues and challenges, and to consider innovative solutions.

In the end, eLearning readiness is an issue not only for your organization, but for you as well (as reflected in question 20). Your own personal commitment will be a key determining factor in the success and sustainability of your eLearning strategy.

# Ready?







# Learning as it should be



## About LearnUpon

LearnUpon LMS helps businesses train their employees, partners, and customers. By combining industry-leading capabilities, unmatched ease of use, and unrivaled customer support, organizations can manage, track, and achieve their diverse learning goals—all through a single, powerful solution. It's learning as it should be.

[Learn more](#)