



AUDIO NARRATION: A FRAMEWORK

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Abstract

Some learners learn best by reading texts and analyzing diagrams, while some learn better by listening, or through debates, discussions and hands-on exercises. E-Learning courses are delivered using a combination of media to address such different learning styles. They normally consist of a combination of text, still graphics and animations, and audio narration (sometimes also called voice-over). However, do all E-Learning courses make use of the varied media in the best possible way? In this paper we will specifically analyze whether audio is effectively used in E-Learning courseware, and also look at a framework for appropriate usage of audio narration.

This paper doesn't deal with the use of sound effects and background music in E-Learning courses.

Audio Narration in E-Learning Courses

1. Introduction

Some learners learn best by reading texts and analyzing diagrams, while some learn better by listening, or through debates, discussions and hands-on exercises. E-Learning courses are delivered using a combination of media to address such different learning styles. They normally consist of a combination of text, still graphics and animations, and audio narration (sometimes also called voice-over). However, do all E-Learning courses make use of the varied media in the best possible way? In this paper we will specifically analyze whether audio is effectively used in E-Learning courseware, and also look at a framework for appropriate usage of audio narration.

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2. Reasons for including Audio Narration in E-Learning Courses

It is interesting to note that audio narration is included in E-Learning courseware for a variety of perceptions that clients or designers have regarding its use. Some of these are listed here.

- a. Audio narration provides significant learning gains to learners.
- b. Audio narration adds an element of interest and engagement.
- c. In story and scenario-based courses, audio sets the tone and conveys the emotions of the characters in the scenario.
- d. When presenting an expert's opinion, audio narration adds an element of authenticity.
- e. Users expect to hear audio narration in courses because it's a commonly used and considered a standard.
- f. Clients demand audio narration because it adds polish to the course.

Of the above reasons, possibly the first four reasons can be said to be in the *interest of the learner*. As Instructional designers, we need to combine text, visual and audio narration in such a way that the course is effective and engaging to learners, and not just because it's a standard in multimedia design or because the client demands it.

3. Multimedia Design Principles

To understand when audio narration actually makes E-Learning effective, let us first look at the principles that guide the design of multimedia. Multimedia design is guided by the following seven principles (as advocated by Richard Mayer & Ruth Clark).

1. **Multimedia principle:** Students learn better from words and pictures than from words alone.
2. **Spatial Contiguity Principle:** Students learn better when corresponding words and pictures are presented near rather than far from each other on the page or screen.
3. **Temporal Contiguity Principle:** Students learn better when corresponding words and pictures are presented simultaneously rather than successively.
4. **Coherence Principle:** Students learn better when extraneous words, pictures, and sounds are excluded rather than included.

5. **Modality Principle:** Students learn better from animation and narration than from animation and on-screen text.
6. **Redundancy Principle:** Students learn better from animation and narration than from animation, narration, and on-screen text.
7. **Individual Differences Principle:** Design effects are stronger for low-knowledge learners than for high-knowledge learners and for high-spatial learners rather than low-spatial learners.

For the purpose of this paper, we will consider the two principles that address the use of audio and narration, viz. the **modality principle** and the **redundancy principle**.

3.1 Audio and the Modality Principle

To understand the modality principle, let's understand how the human brain works – in the context of the working memory. The working memory is concerned with the storage of limited information and it stores auditory information separately from visual information. When a concept is explained using visuals and text, the visual area of working memory gets overloaded. On the other hand, when you explain a visual using audio, the information is divided between the two working memory systems and this optimizes the capacity of working memory.

Therefore, as per the modality principle, audio should be used in situations where a cognitive overload is likely. For example, if you are watching a complex process presented visually, your brain needs to focus on the visual. If you have to read text and at the same time focus on the visual, it will cause a cognitive overload.

There are times, however, that you may want to use only text and not audio. For example, if you are providing a **detailed set of instructions** for attempting an exercise in your E-Learning courseware, it is better to provide this as on-screen text. This helps learners to easily refer to the instructions as many times as they want.

When creating a course for a **global audience**, it is better not to include audio as the primary medium for presenting content because English may not be the first language for a significant number of learners. Such learners will benefit from reading text at their own pace rather than hear it.

3.2 Audio and the Redundancy Principle

Have you noticed that a lot of E-Learning courses provide an exact audio narration of large amount of text on the screen? These are probably *those courses* where audio is included either because it's a standard or the customer has demanded it.

As per the redundancy principle, it is better to have audio and animation only rather than text, audio and animation.

There are some situations in which redundancy may work. For example, some people prefer listening to reading large amounts of text. Likewise, for visually impaired users who do not use assistive technology, having audio narration may be useful.

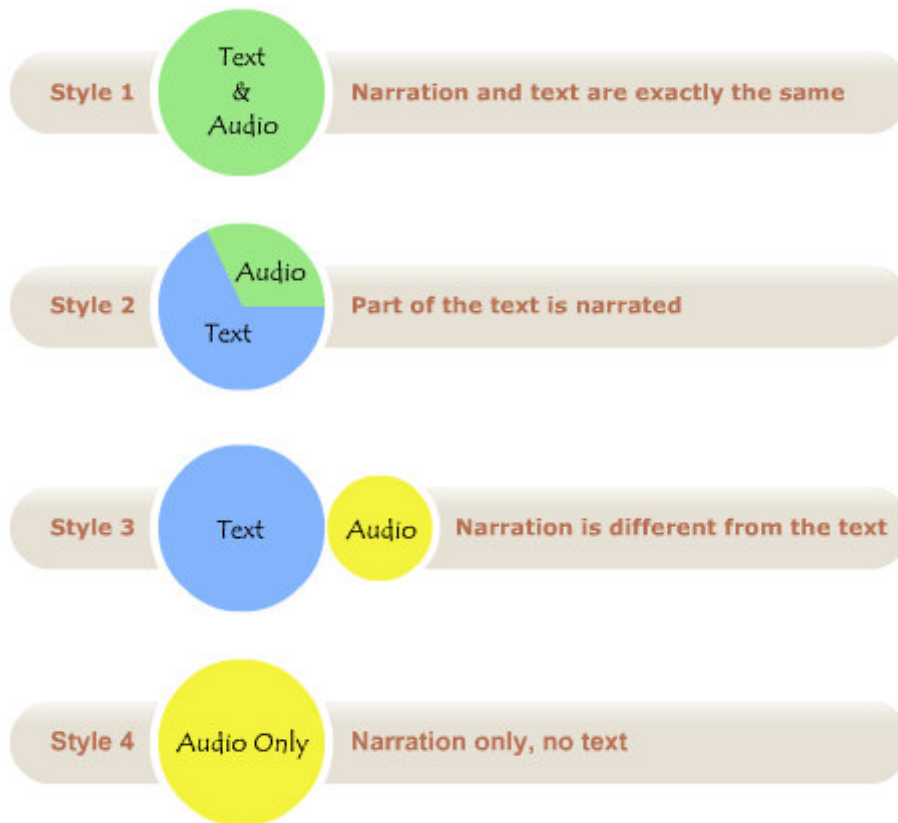
3.3 Audio and the Reading Pace

Research has shown that if the text is exactly the same as audio, it can hamper learning. This is so because the speed at which most people read is faster than the speed at which a narrator typically reads out the same text. As a result, a learner may be reading the on-screen text ahead of the narrator, resulting in a conflict between ears and eyes.

4. Framework for Using Audio Narration in E-Learning Courses

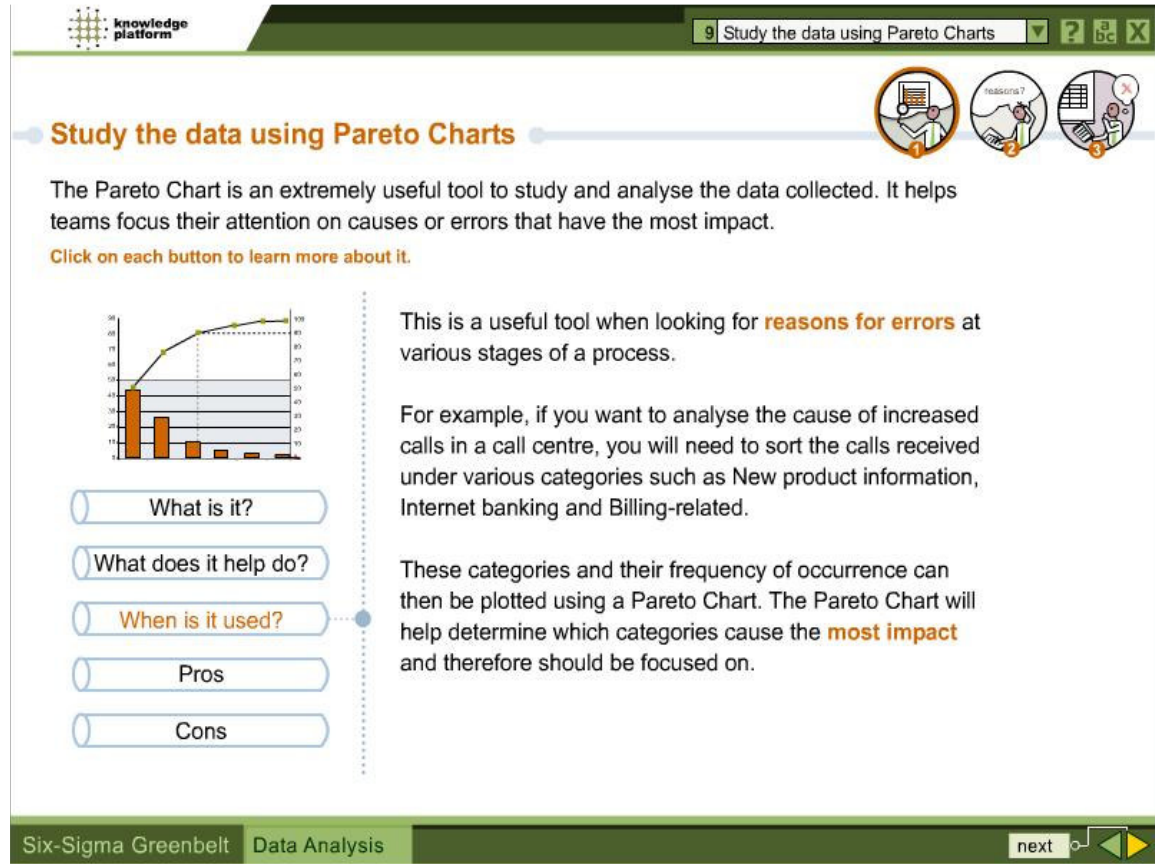
Now that we have a little theoretical background to the use of audio narration, let's look at the audio framework that we use at Knowledge Platform. This framework is designed to help arrive at an informed decision on audio narration usage in E-Learning.

In this framework, we define four styles of audio narration based on our experience on working with audio narration in E-learning courses.



4.1 Style 1: Narration and Text are exactly the same

In this style, the on-screen text is narrated verbatim. A sample from a course using this style is shown below. All the text on the screen is narrated verbatim.



The screenshot shows an e-learning interface with a green header and footer. The main content area is titled "Study the data using Pareto Charts" and includes a text block, a list of questions, a Pareto chart, and explanatory text. The interface also features navigation icons and a "next" button.

Study the data using Pareto Charts

The Pareto Chart is an extremely useful tool to study and analyse the data collected. It helps teams focus their attention on causes or errors that have the most impact.

Click on each button to learn more about it.

What is it?

What does it help do?

When is it used?

Pros

Cons

This is a useful tool when looking for **reasons for errors** at various stages of a process.

For example, if you want to analyse the cause of increased calls in a call centre, you will need to sort the calls received under various categories such as New product information, Internet banking and Billing-related.

These categories and their frequency of occurrence can then be plotted using a Pareto Chart. The Pareto Chart will help determine which categories cause the **most impact** and therefore should be focused on.

Six-Sigma Greenbelt Data Analysis next

When discussing options for audio narration, we typically advise our customers to avoid this style, especially if there is a lot of on-screen text in the course. In addition to the problems associated with the redundancy principle, another issue is an increase in the file size due to large amounts of text being read out. When bandwidth may be limited, this style should be avoided.

Often, customers demand this style because of their perception of what media an E-learning course should contain, but later come back to us for removing it or making it optional.

4.2 Style 2: Part of the text is narrated

In this style, a part of the on-screen text is narrated. This is usually the lead-in text or instructions to attempt an exercise.

This style may be useful to add an additional element of interest in content. It can break monotony, without increasing the file size significantly. By limiting the narrated audio, one can avoid the redundancy-related problems.

A sample from a course using this style is shown below. Only the lead-in text (shown in pink on the left side of the screen) is read out by the narrator. Since the course is story-based, audio narration helps build the flow across pages and also adds an element of drama needed for such a course.

COMPLIANCE
PEAK
Careful E-Mail Communication | Common E-Mail Misconceptions
Resource Center | Previous **3 / 19** Next

New Competition on the Block

Explore Mobility, which is dominant in its own market, is facing competition from *Amoebe Wireless*, a new market entrant.

Amoebe's **MobiExcel** is an advanced product that offers some innovative features compared to *Explore Mobility's Tracker*.



Have you seen the latest sales figures?



Yes, **MobiExcel** is really giving us tough competition.



We need to tackle this issue and fast. Are you free for a meeting today?



Sure. We can meet in an hour.



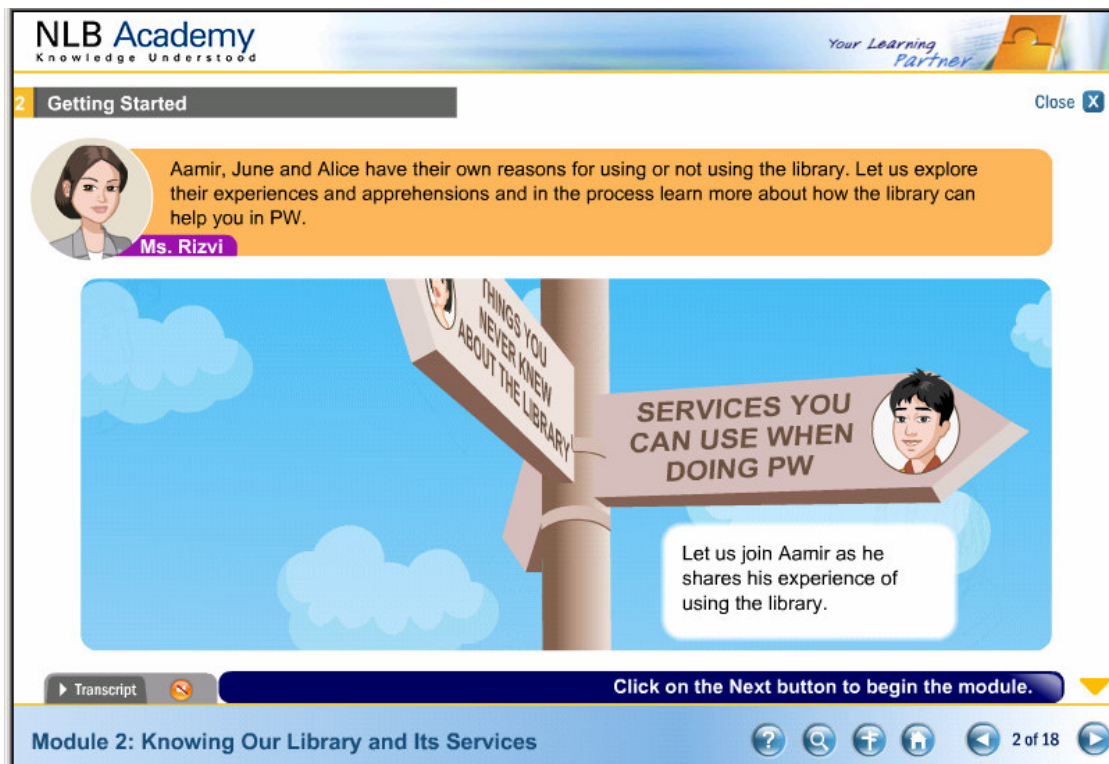
I'll prepare for the meeting. I wonder what tips Matt has for me to address this issue.

A CELC Learning Solution | Powered by Knowledge Platform

 Menu | Help | Close

4.3 Style 3: Narration is different from the text

In this style, a synopsis or gist of the on-screen text is narrated.



The screenshot shows the NLB Academy interface. At the top, it says 'NLB Academy Knowledge Understood' and 'Your Learning Partner'. Below that, a 'Getting Started' section is highlighted. A narrator, Ms. Rizvi, is shown with a speech bubble: 'Aamir, June and Alice have their own reasons for using or not using the library. Let us explore their experiences and apprehensions and in the process learn more about how the library can help you in PW.' Below this is a graphic of a signpost with two signs: 'THINGS YOU NEVER KNEW ABOUT THE LIBRARY' and 'SERVICES YOU CAN USE WHEN DOING PW'. A speech bubble next to the signpost says: 'Let us join Aamir as he shares his experience of using the library.' At the bottom, there is a 'Transcript' button and a 'Click on the Next button to begin the module.' instruction. The footer shows 'Module 2: Knowing Our Library and Its Services' and '2 of 18'.

Text narrated:

Aamir, Alice and June received mixed feedback on their project reports. Let us find out why they did or did not use the library.

This style is usually chosen because customers or designers believe that verbatim narration is wasteful or boring.

Although the above perception is not incorrect, we believe that in choosing this solution to overcome the problem of redundancy causes another type of problem, that of cognitive overload.

Studies have shown that while congruent material can enhance comprehension and learning, incongruent material can significantly reduce it. Learners are forced to listen to a summarized version of what they may not yet have read completely, causing confusion. Therefore, we strongly recommend that this style be avoided, because it doesn't add any value and might reduce instructional value.

4.4 Style 4: Narration only, no text

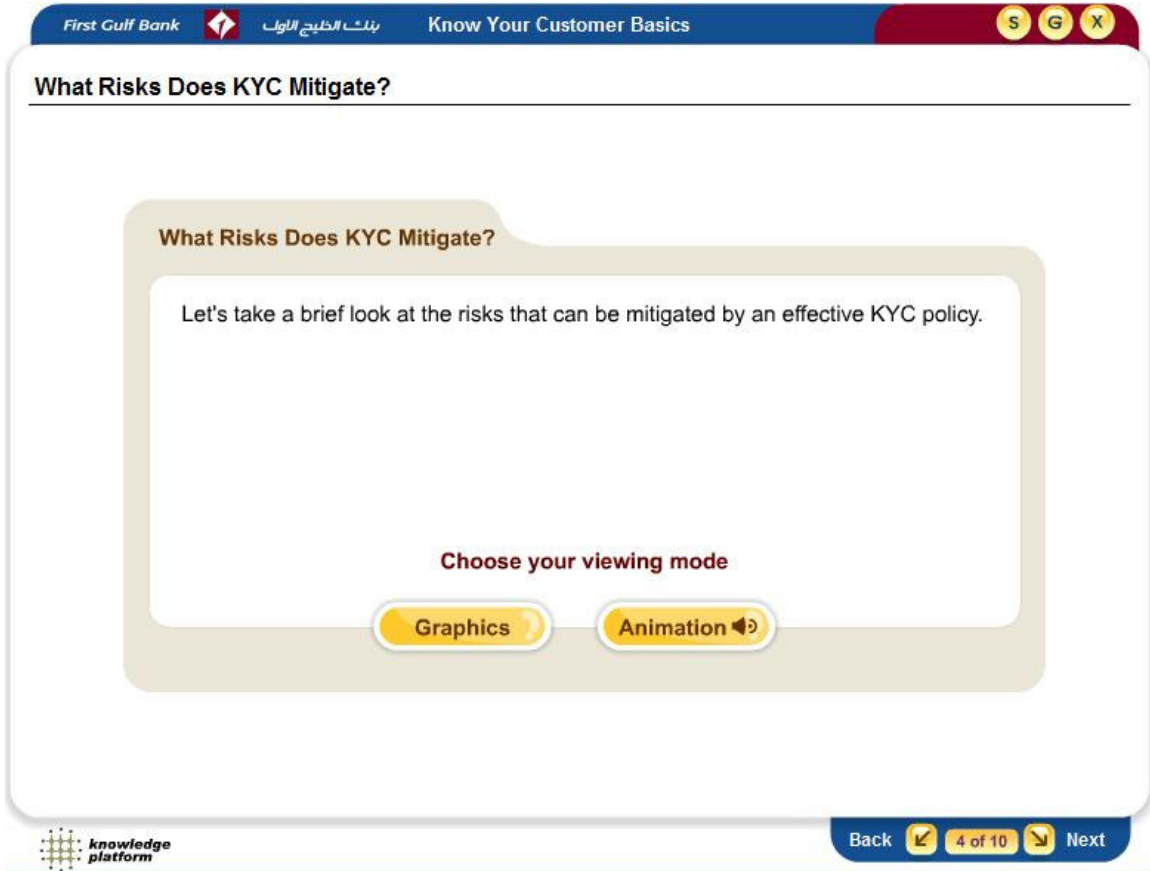
In this style, audio narration is combined with on-screen visuals or animations. On-screen text is not visible upon entry into the page.

This style is recommended when explaining a complex visual or process. It also helps tell a story in a compelling manner by using the right voice, tone and accent. This style can be effectively combined with Style 2.



When using this style, two elements are important to ensure learning effectiveness: a transcript of the audio narration and synchronization between the visuals and the audio narration. Transcript of the audio narration ensures that learners can easily access the text that is being read out. Synchronization between the visuals and the audio narration ensures that visuals displayed correspond exactly with the audio narration.

It is also very important to plan for the learner who doesn't have the required hardware by providing alternative treatment. A Transcript button may not be enough if an animation relies heavily on audio. The sample shown below demonstrates one such technique in which learners can choose one of the two viewing modes (Graphics or Animation with audio).



The screenshot shows a web browser window with the following elements:

- Header:** "First Gulf Bank" and "بنك الخليج الاول" (Bank of the First Gulf) on the left, and "Know Your Customer Basics" on the right. There are also window control buttons (S, G, X) in the top right corner.
- Section Header:** "What Risks Does KYC Mitigate?"
- Content Area:** A light beige box containing the text "What Risks Does KYC Mitigate?" and "Let's take a brief look at the risks that can be mitigated by an effective KYC policy."
- Viewing Mode Selection:** A section titled "Choose your viewing mode" with two buttons: "Graphics" and "Animation" (which includes a speaker icon).
- Footer:** "knowledge platform" logo on the left, and navigation buttons "Back", "4 of 10", and "Next" on the right.

5. A Word of Caution

Under some circumstances, including audio narration becomes a bad idea. Do consider these carefully before making this critical design decision.

Localization

When a course needs to be localized in other languages, it is generally a good idea to not include audio narration. Audio narration increases the effort and expense required to localize courses and also introduces errors that are rather difficult to detect and fix. Our data shows that the cost of localizing an English course is about **20%** of the original development cost, if the course has no audio narration. If the course has audio narration, then the cost is about **30%** of the original development cost.

Some customers request for audio narration in the English course, but do away with it in the localized versions. Of course, this is only possible if audio narration is not an integral part of the course design and can be switched off without any significant loss to the learner. Style 4 of audio narration becomes a huge problem.

Low Bandwidth

Despite advances in audio compression techniques, audio files still increase the course size significantly. This becomes a major pain point when bandwidth available to learners is limited. We have had cases in which the customer paid for including audio narration, but later requested that it be taken out because of slow download speed for low bandwidth learners. This solution worked because audio was not used as the primary medium of instruction on any single page.

Infrastructure



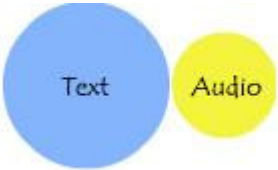

It is important to keep in mind that not all learners will be equipped with speakers/headphones required to listen to audio narration in the course. This can be a serious problem if style 4 is used without alternative treatments.

Global audience

Often, a course designed for one audience is used by employees in other locations. Audio narration recorded for one location may not work well for learners in other locations because of accent and style of speaking. Some learners may just be more comfortable reading text at their own pace, rather than hear a narrator.

6. Conclusion

In this paper, we described four different styles of using audio narration in E-learning courses. The table below summarizes the key features of these styles.

#	Narration Type	Pros	Cons
1.	Narration and text exactly the same 	<ul style="list-style-type: none"> • May work for learners who prefer to listen rather than read large amounts of text. • Learners who are not equipped for audio can simply read the text, without losing out on any message. 	<ul style="list-style-type: none"> • Causes disruption in learning (redundancy principle) • Increases file sizes and download time
2.	Part of the text is narrated 	<ul style="list-style-type: none"> • Adds an element of interest without increasing the file size a lot • Helps tell engaging stories • Helps emphasize key instructions 	<ul style="list-style-type: none"> • Where bandwidth is very limited, the additional audio element can increase download time and cause frustration.
3.	Narration is different from the text 		<ul style="list-style-type: none"> • Causes disruption in learning. • Adds an overhead to write a different audio script.
4.	Narration only, no text 	<ul style="list-style-type: none"> • Helps explain complex concepts/processes • Helps tell engaging stories 	<ul style="list-style-type: none"> • Learners who are not equipped for audio will lose out on key messages. • Need to provide viewing options, increasing the cost of the solution. • Becomes difficult and expensive to localize courses.

Do not assume that audio narration must be used in E-Learning courses always, and on every page. Also do not assume that adding audio which is just the same as text aids E-Learning and caters to varied learning styles. Like any other strategy that you use to enable learning, the use of audio narration too should be done after a lot of thought and analysis – so that it is applied only with the aim of enhancing learning.

About the Authors

Purnima heads the Instructional Design function at Knowledge Platform. She has written papers on instructional design and performance improvement, which have been published and/or presented in forums such as International Society of Performance Improvement (ISPI) and American Society of Training and Development (ASTD).

Puja Anand heads the E-learning business at Knowledge Platform. In the past, she has developed courses, taught instructional design and managed QA for large projects.

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About Knowledge Platform

Knowledge Platform is one of Asia-Pacific's leading instructional design, E-learning content development and learning technology solutions companies. Established in early 2000, Knowledge Platform has offices in Singapore, Tokyo, Delhi and Islamabad. By providing services such as E-Learning Content, Instructional Design, Training Solutions, and E-Learning Technology Solutions, Knowledge Platform helps its clients to increase their learning efficiency. Knowledge Platform has a rapidly growing, blue chip enterprise, banking, educational, and government sector client base.

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