

Strategies for improving eLearning effectiveness

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1. Introduction

A few years back, many Pandits projected that eLearning will become the major medium of adult learning, replacing many conventional methods. But, the recent studies indicate that, though eLearning has registered a substantial growth, its penetration among the organizations is far below the projected level. Many reasons are attributed for this resistance to adapt eLearning. Among them, the three important reasons are:

1. Huge initial cost of implementation
2. Long lead-time for development of courseware
3. Skepticism about the effectiveness of eLearning

The first two reasons can be attributed to the problem of perception from the industry's point of view. Though eLearning requires huge initial investment, organizations generally overlook the benefit of the long-term return on investment. Similarly, organizations do not seem to consider the huge time saving on a long run, though the initial lead time for courseware creation may be high. This brings in the third reason as the major issue to be addressed by the eLearning content developers and strategists.

This paper explores some of the strategies to overcome these resistances in order to make eLearning, a more popular learning medium. The paper will touch upon the first two problems and will deal with the third problem, i.e., effectiveness of eLearning, in detail.

2. Ways to improve cost and lead time

The two major components of eLearning cost are, (1) Learning Management System (LMS) and (2) content development. Here are a few suggestions to manage them:

2.1. Learning Management System (LMS)

It is a fact that the full functional learning management systems are prohibitively expensive. This has become a major deterrent for many medium and small organizations to experiment with eLearning. However, the cost of LMS can be greatly reduced by adapting open source LMS engines. Alternatively, subscribing to hosted LMS services, may work out to be less expensive than buying the LMS and investing in the server set up.

2.2. Content development cost and lead time

The next major apprehension for eLearning is the cost and long lead time for courseware development. This is true in case of conventional eLearning models, where even working out the Instructional Design strategies consumes a lot of time.

In addition to this, developing contents with extensive interactivity and animations further takes more time and effort and results in a huge budget. Though there will be a greater return on the investment, the huge initial cost has become a block for many organizations to consider eLearning as an alternative option for training.

Some of the strategies that can be adapted to reduce the initial investment and development time are:

- Rapid eLearning
- Video-based eLearning

In these cases, contents that are available in some common format, such as MS PowerPoint can be converted into eLearning courseware and audio narrations can be added using simple tools, quickly and cost effectively.

The other option is to record the live instructor lead training programmes using a video camera and then convert the footage into eLearning content by using some special tools.

3. Why are some eLearning contents not effective?

The major problem that concerns the developers is the questions raised about the effectiveness of eLearning. We say eLearning is more effective because it facilitates self-paced learning. But the catch is ... how can we motivate the learners to try out the content in the first place, and go through it completely?

We do come across many coursewares, which are just '*content dumps*' and do not attract the learners, leave alone sustaining their interest. Why do these contents fail? The simple reason could be that they do not satisfy the basic requirements of motivation for learning, viz., attention, relevance, confidence and satisfaction of the learner. (*John Keller's ARCS model*)

When we analyze those contents, we often find that they have some strong factors that may de-motivate the learners. Some of the factors are:

- Unattractive presentation
- Boring style of writing
- Undefined / ambiguous learning objectives
- Irrelevant content
- Too simple or too complex content
- Too much to grasp in one go

- Other Learning Blocks
 - Inappropriate use of media
 - Unexplained terms and concepts
 - De-motivating assessments
 - Content flow disconnect / unstructured content

Let's look at how each of these may affect the learning efficiency.

3.1. Unattractive presentation

Getting the attention of the learner is the first step towards motivating the learner to try out (*Gagne's conditions of learning*). The interface design should be clean, navigations functional & easy, and the look & feel attractive to hold the attention of the learner.

Relevant graphics/ pictures and diagrams may be useful in breaking the monotony of large text areas. Keeping the on screen text to the minimum and to the point may improve readability and may reduce the reading stress substantially.

Every visual aspect of the content, such as the right size and colour of fonts, proper line spacing, white space, relevant diagrams positioned at right places to get the visual balance and pleasant colour scheme will have a positive impact on the acceptability of the content.

3.2. Boring style of writing

Writing style can make all the differences between a hopeless content and a great content. One needs to understand the profile and the preference of the target audience and fine tune the style to suit them. Any content, which the learners could identify as written in '*their kind*' of language and style, will have a high probability for success.

If you are not an expert in articulating the message in a style to suit your specific target, at the best you should adopt a simple neutral style and be clear in conveying the content. Simple sentences are always better than complicated compound ones. Use of active voice seems to work well in comparison with passive voice at many instances. More often arrangement of content in logical steps and simple bullet points will work better to drive the point than long paragraphs of text.

3.3. Undefined / ambiguous learning objectives

Stating clearly, in unambiguous terms, what the learner will gain at the end of the course, is very important. This helps the learners to make sure that the outcome of learning is in line with their expectations. This also helps in being mentally prepared to receive instructions and recollecting related prior knowledge. More than the learners, defining learning objectives will help the Instructional Designer to make the content focused to the objectives and to structure them in a logical flow.

3.4. Irrelevant content

Any information irrelevant to the learning objectives in the content will have a tendency to distract the learner and dilute their attention on the main subject. Though giving examples, scenarios, stories and anecdotes will be useful in explaining things better, one must be careful in choosing them appropriately and making sure that they enhance the learning value and not dilute it.

3.5. Too simple or too complex content

Learning is an activity where the mind looks for new information, new solutions, new ways of looking at things and new knowledge that was never encountered before. The mind is in a state of anticipation to know the unknown. Though it is a good strategy to recall the prior knowledge before dealing with new concepts (*Gagne's events of instruction*), the learners should clearly know that what is being talked at the moment is just preparatory and something more is in store for them. Dwelling with the known information for too long a time without introducing the new knowledge, will dampen the curiosity of the learners resulting in losing interest.

On the other hand, if the content is too complex for the learners to comprehend, there is no guarantee that they will return to the course. Hence, the learners' level of knowledge needs to be taken into account while developing the content. There has to be a right mix of recalling the prior knowledge and a systematic introduction of new information in small manageable chunks.

3.6. Too much to grasp in one go

The brain has its limitation in grasping new information. The '*three stage processing model*' of cognitive theories states that the short-term memory (STM) can hold only seven plus or minus two information at any given point of time. The theory also states that the capacity of STM can be increased if the content can be chunked into meaningful parts.

It is not just enough to chunk the courses into learning modules and modules into pages. It is also equally important to chunk information within the pages into small, meaningful parts arranged in a logical sequence. It is better to make sure that each page contains not more than 7 to 9 points leading to a meaningful '*page take away*'. It is also better to divide the pages in such a manner that each page does not have more than one page take away.

3.7. Other Learning Blocks:

Learning blocks are the resistance created in the minds of the learners while going through the content. There are several elements that may cause a learning block, even in a well prepared content, resulting in momentary loss of interest or distraction to the learners. In an Instructor Lead Training (ILT) scenario, these blocks could be identified and handled more easily either by the learner or trainer. For example, a learner can put up his hand whenever he finds it difficult to follow and ask for additional support. On the other hand, the trainer may also pose a few questions to the learners to ascertain if they have any difficulty in understanding.

But, in an asynchronous eLearning environment, the learner has no way of putting up the hand and asking for the assistant. Hence, it is all the more important for the eLearning content developers to put themselves in the shoes of the learner and go

through the content thoroughly and make sure that the content is free from any induced learning blocks.

What are the elements that can create learning blocks? Here are some:

- **Inappropriate use of media:** Use of irrelevant graphics, excessive animations, flashy banners and logos, inappropriate audio effects, etc., will distract the learners' attention and even irritate them creating a block for proceeding further.
- **Unexplained terms and concepts:** In a smooth flowing content, sudden occurrence of a new term or a concept, if not explained properly at its first occurrence may cause a block. It may be a good idea, to give hyperlinked pop-up boxes to explain them briefly, in case the learners require assistance.
- **Content flow disconnect / unstructured content:** As discussed earlier, the logical flow of chunks of information is very important for making the content effective. If the learners do not see a structure or if they have to go back and forth to put some pieces of information to make some sense, it will discourage them to proceed further.
- **De-motivating feedback:** While it is a good idea to test the learners' progress in between the course by using formative assessments, the feedback should always be positive. Prolonged negative feedback will demotivate the learners and reduce their confidence level, creating a major learning block.

4. How to improve effectiveness of eLearning contents?

Having seen what not to do, here is a step further to make things better. The following are some more points, which will make the eLearning content highly effective.

4.1. Know you target audience and their learning preferences:

The better, one knows the target audience and their learning preferences, the more effective, he/she will be able to develop the content. It is very important to review and re-review the content at the development stage with an eye of the end users and make sure that it will work for them.

4.2. Define clear learning objectives and work the content around them:

This is of course, the most fundamental point. You need to be very clear about the objectives and outcome of the learning content, and more significantly, you should be able to clearly communicate to your learners up front, before they take a plunge. It is a good idea to have a snippet of the module with just a couple of lines to make the learners understand '*what's in it for them*'.

4.3. Use of Keller's ARCS model and Gagne's events of instruction:

John Keller (1987) created the ARCS model describing the factors for learners' motivation. Keller's synthesis recommends that the four important factors for keeping the learners motivated are:

- Attention
- Relevance
- Confidence
- Satisfaction

The content should create attention of the learner, be relevant to his requirements, give the learner confidence during the process of learning and finally offer a satisfactory learning experience. It is always better to remember ARCS while developing the content.

Gagne's nine learning events are the most popular and effective model for creating eLearning contents. Gagne proposed that the content should have nine distinct instructional events to be effective. They are:

- (1) Gaining attention (reception)
- (2) Informing learners of the objective (expectancy)
- (3) Stimulating recall of prior learning (retrieval)
- (4) Presenting the stimulus (selective perception)
- (5) Providing learning guidance (semantic encoding)
- (6) Eliciting performance (responding)
- (7) Providing feedback (reinforcement)
- (8) Assessing performance (retrieval)
- (9) Enhancing retention and transfer (generalization).

These events should serve as the basis for designing instruction and selecting appropriate media (*Gagne, Briggs & Wager, 1992*).

4.4. Use of interactivity / Games / Simulations:

Using interactivity in eLearning contents has many benefits. It keeps the learners involved, breaks the monotony of a single way communication, enhances the learning experience by participation and facilitates active experimentation (*a component of Colb's Learning cycle*).

Many theories indicate that learning by doing improves the retention of knowledge. "Creative presentations afford the opportunity for students to reach their social, artistic and emotional goals. But more importantly, in these contexts learning becomes more enjoyable. Learners exercise choice and creativity, and there is a minimum amount of negative pressure."— says Dan Yaman, President of LearningWare, Inc.

4.5. Use of real life scenarios:

Cognitive Theories say that any new information is compared to existing cognitive structures called 'schema'. Meaningful information is easier to learn and remember. If a learner links relatively meaningless information with prior schema it

will be easier to retain. (Wittrock, Marks, & Doctorow, 1975, in Good and Brophy, 1990). Hence, use of real life scenarios and examples helps the learner to relate the new information with already familiar situations, improving the effectiveness of knowledge transfer and retention.

4.6. Facilitated learning:

One of the draw back in eLearning is that the learners are left to learn on their own. In case the learners need assistance, there is no one to guide them. But with the present technology, self-paced eLearning can be supplemented with facilitators, by way of Webminars, simple chat, voice chat, video conferencing, asynchronous and on-line tutoring and so on. These techniques certainly build a bridge between ILT and eLearning, and combine their advantages.

4.7. Setting up of 'Communities of Practice':

It is a proven fact that the learners learn more effectively from peers than trainers. In order to encourage peer learning, some of the facilities, such as discussion board, blogs and groups can be used effectively.

4.8. Podcasting/ mobile audio contents as supplements:

With new media, such as i-pod, mp3 players and FM picking up, wherever possible, the content supplements in these media may be used for reinforcing the knowledge.

5. Conclusion

Proper use of learning principles and instructional design strategies are the foundation for creating effective eLearning contents. With well designed contents, eLearning can facilitate knowledge transfer across a large section of learners with excellent efficiency. If the content developers understand and apply the fundamentals of learning theories coupled with creative instructional strategies for creating courseware rather than just creating content dumps, no doubt, that eLearning will become the most preferred medium for learning.

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