

Essential analysis in e-learning development ♦

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Development of any e-learning product has a purpose. It is not something that is developed lightly as it involves costs, which can be high. Unless the analysis is good and clear, what follows is unlikely to be any clearer.

The analytical process starts with identifying the purpose of that e-learning, and defining the objectives. Initial clarification of the overall purpose of the e-learning is essential, because the subsequent analysis will be different for each. Is it for training or education or development? Training is focused on clearly defined objectives related to direct business needs. Development and education equip learners with an ability to apply the learning to many situations. How analysis and analytical tools are used in the development process depends on identifying this difference - training or development - and adapting accordingly.

Purpose of analysis

The purpose of analysis, as I see it, is to provide the building blocks for the creative design process which will shape the e-learning. You get a feel for the size of the e-learning product, the time it will take someone to complete, and it identifies the content to be included. Analysis will also give indications of design constraints and the level to which the learning must go. For example it is no good designing cut and paste exercises in Word training if the users do not know how to highlight text.

There are well-known ways to carry out analysis for learning, and the tools which are used depend on their appropriateness to the end product. Each of

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these ways is too large to explain in this article, but their outcomes are the essential building blocks for the design team.

From these building blocks the designers can analyse an existing situation to identify if training is the answer – sometimes it is not! If training is the answer, they can recommend a solution. Designers can also identify any differences between what a client thinks they want and what they actually need.

Bridge building

I have always visualised the instructional designer and analyst, often the same person, acting as a bridge between the learner and knowledge, skills, and/or attitudes required in the e-learning. Using the results of at least an initial analysis the designers can establish criteria for the e-learning design. These then determine the depth of knowledge required. For example, is the e-learning to be an overview of a system, giving a rough idea of how it works, or is it training someone to be able to use a system properly from day one? A different level of analysis would be needed to achieve these ends.

One common mistake is to think that the analysis can be carried out as you design the screens. This is especially tempting if the project is to turn a classroom course into e-learning, or a manual into interactive training, and time is at a premium. An analysis would identify which of the contents are essential to be included, as reading on screen is not the best way to take in a lot of written information. Lack of the analytical details will mean instructional design principles cannot be applied properly. The results are likely to be verbose and poorly structured e-learning that is not used very much, or worse, turns users off the medium altogether.

Multi-layered training

Distance learning, such as e-learning, requires careful and thorough analysis even if mentoring and tutor support is included in the package. Multi layered e-learning can be designed to accommodate different audiences for the same

topic. In this case good analysis is very important. Without a systematic approach to analysis the different parts will not form a cohesive whole. To illustrate this I describe a computer system developed to log attendance at work, book holidays and record illness etc in a large multi-sited global manufacturing company. The computer system was part of an integrated suite of computer systems running all major aspects of the company and information was shared between the systems, including the finance system controlling wage payments. Analysis showed four user groups required three different levels of information.

The solution was to produce two videos, and an e-learning package. The mix and match approach made it essential the analysis was consistent. No information contained in Videos One and Two could contradict processes described in the e-learning. Without good analysis it is remarkably easy to over-simplify at high level, which ultimately confuses the learners and lowers their acceptance of the contents. Analysis for each unit of learning had to be well coordinated, so repetition was kept to a minimum. The e-learning had to be very accurate – people don't like their pay messed about and the figures from this system fed the finance systems which calculated and carried out salary payments.

Scenario based learning

Scenario based learning is very dependent on good analysis particularly in technical areas – it is a very powerful tool but if the analysis is not good enough to enable realistic scenarios to be developed, then it loses its credibility. Scenario based training gives lots of opportunities for learners, particularly in safety critical training where 100% accuracy is required, for example technicians in nuclear power and rail signalling industries. The analysis to build scenarios can be very time consuming and difficult because you not only need technical readings and their interpretation for correct working, you also need realistic readings and consequences for anticipated wrong moves. You also need to decide how far from the optimum procedural

pathway users should be allowed to go – for example is it a full simulation where anything can happen, or are they guided after a certain point? Pilot training is a good example of full simulation, where all the readings on each piece of equipment must match, and co-ordinate with, sound, movement, and video screens to ensure maximum reality.

Who can do all this analysis?

A mix of logical, analytical and creative skills is needed to carry out the analysis required to build a course. Good instructional designers usually have all these skills. A benefit of using external consultant instructional designers is that they can use a fresh eye on the content. Subject matter experts are not usually appropriate people to provide content directly ready for screen design as they tend to want all the information included and are not familiar with how adults learn. They sometimes find it difficult to put themselves in the place of novices. Subject matter experts, as found in academic and in-house training teams, do develop their own training, as they are sympathetic to learners, but they have an internal structured appreciation of their subject, which is a subconscious analysis. If transferred to develop materials in an unfamiliar subject area they are often unaware of the importance of analysis and how to go about it.

Finally, how do you know you have completed the analysis? One indicator I use when developing bespoke training is that the same answers keep coming up. Another is that the information I have makes a good story, hangs together well, and has no gaps in it. The important thing is to carry out at least some analysis because if it is deficient - non-existent, inaccurate or inadequate - it leads to problems further down the line, which is usually expensive, and limits the achievements of the learners.

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