Whitepaper

Program Evaluation in E-learning

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Introduction

Many organizations have invested resources in the development and deployment of online training programs. E-learning has become an efficient method of delivering instruction and training. Like any new initiative stakeholders of online learning faced many problems.

Fortunately, exploring the various pros and cons of any training program is always an option. Before you begin to correct any mistakes, you must have an in depth understanding of an online learning environment.

To understand it you must first have a comprehensive picture of the *product*, *people*, and *process* involved, and study vital issues encircling its various dimensions. The 'What, Who and How' progression can be used to map a comprehensive picture of e-learning.

An e-learning structure will address the instructional design and educational issues in the context of a much wider and complex set of factors. The structure is useful when reviewing any organization's e-learning environment.

More and more organizations are adopting this unique competent method of training. They constantly review their e-learning programs from the various dimensions of an e-learning environment. This has enabled them to become more conversant about e-learning and its progression. This further guides us to enquire deeper into the field.

The following is a brief summary on how program evaluation for online training programs is possible.

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eLearning Structure

An eLearning structure can be used to confine, the records of any organization's online training. It does this by attending to concerns encompassing *eight dimensions* of open and distributed learning environments.

Educational

This dimension refers to *Teaching* and *Learning*. It addresses concerns involving,

- Content
- Audiences
- Goal and media analysis
- Design approach
- Organization, methods and strategies of e-learning environments

Technological

This dimension examines concerns related to *technology infrastructure* in the e-learning environment. Technology includes the following segments:

- Infrastructure planning
- Hardware
- Software

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Interface Design

This dimension refers to the overall *look* and *visual feel* of the e-learning program. It includes,

- Page and site design
- Content design
- Navigation
- Usability testing

Evaluation

This dimension includes the *assessment of the learner* as well as the *evaluation of the design* and *learning* environment.

Management

This dimension refers to the *maintenance of the learning environment* and *distribution of information*.

Resource support

This dimension studies the *online support* and the available resources necessary to encourage a significant learning environment.

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Ethical

This dimension refers to

- Social and political influence
- Cultural diversity
- Bias
- Geographical diversity
- Learner diversity
- Information accessibility
- Etiquette
- Legal issues

Institutional

This dimension deals with concerns related to administrative and academic affairs as well as student services related to e-learning.

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‘What, Who and How’ Progression

The ‘what, who and how’ progression simply refers to, *product (what)*, *people (who)* and *process (how)* involved in any online training.

In an e-learning program, the *people* are involved in the *process* of creating e-learning *products*. The ‘what, who and how’ progression can be used to map an all-inclusive picture of e-learning.

The e-learning process can be divided into two wide categories:

Content development, which typically includes a

- Planning stage
- Design stage
- Evaluation stage
- Content delivery, which includes a
- Instruction stage
- Marketing stage
- Maintenance stage

The e-learning process is repetitive. ‘Evaluation’ is a separate stage of the content development process; it should be inculcated and improved within each stage of the e-learning process. People involved in the various stages of an e-learning process should be in contact with each other at all times and revise material when ever needed.

Based on the size and scope of a program or project, the number of individuals involved in the various stages may vary. Due to the interrelated and interdependent nature of many e-learning tasks, there is an overlap in roles and responsibilities. However, this rarely occurs in a large scale project. It mostly happens in small scale projects where the individuals involved can afford to take on multiple roles.

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An All-Inclusive Approach to Program Evaluation in eLearning

The overall status of any e-learning program can be understood completely, only if, each stage of an e-learning process is carefully examined through the eight dimensions of the 'structure'. The all-inclusive approach to program evaluation in an open and distributed learning uses the e-learning structure to review the 'who, how and what' progression.

In this section, we discuss how each category of the 'structure' is used to review the quality of the products and services. The review is carried out during the content development and content delivery phases of any e-learning process. In turn, it will help us judge the performance of people involved in the process.

This review process involves asking *precise* and *relevant questions* from each dimension of the e-learning structure.

> *Note: it may be difficult to construct questions for a few dimensions of the 'structure' and for some stages in the e-learning phases. In such a situation it is advised not to get worried about those specific dimensions and continue with the others. Within this chapter we have assembled a handful of sample questions for the following seven stages of the e-learning process.*

Review of Content Development Phase

1. Planning
2. Design
3. Development
4. Evaluation

Review of Content Delivery Phase

1. Marketing
2. Maintenance
3. Instruction

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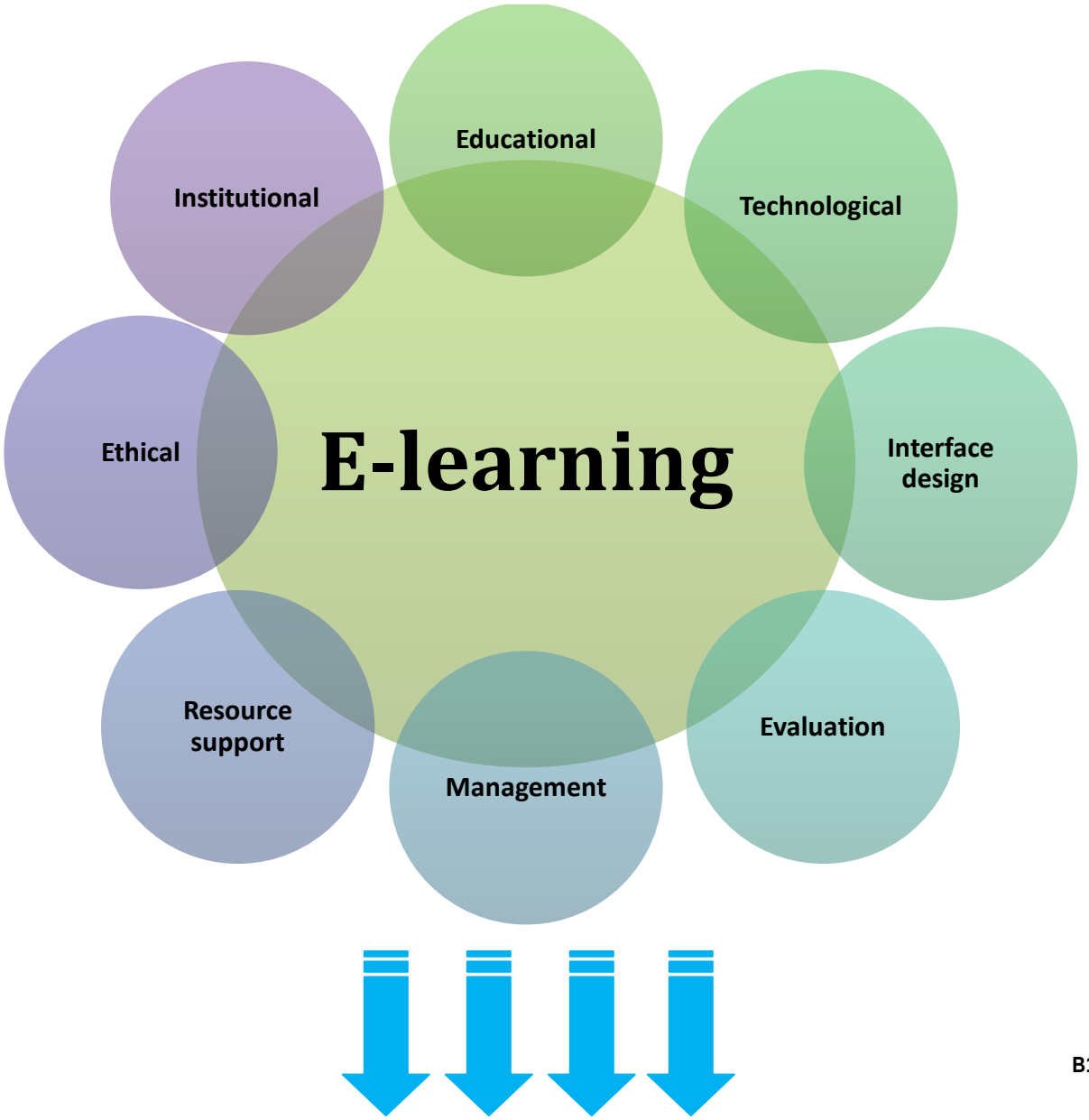
AN ALL-INCLUSIVE APPROACH TO PROGRAM EVALUATION IN E-LEARNING



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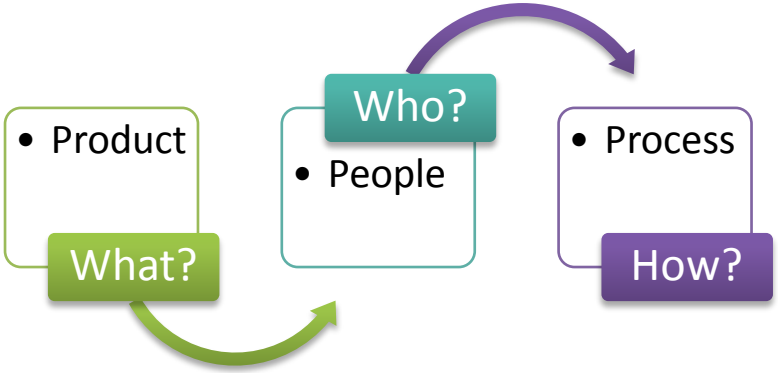

Figure 1: *The 'what, who and how' progression model*

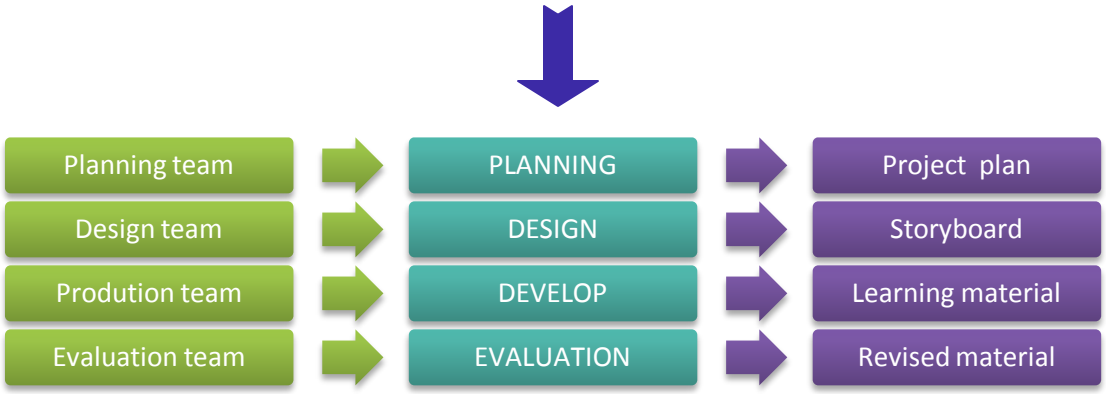

Figure 2: *Content Development*

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Figure 3: *Content Delivery*

Review of e-learning - Planning stage

The planning team of any e-learning project depends on the scope of the particular project; it may involve key individuals such as -

- project manager,
- business developers and
- instructional designers

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These key individuals develop a project plan, which include a clear picture of the people, process and product of an e-learning strategy. A *project plan* provides insight to the inner workings of an e-learning project. Table 1 provides sample review criteria for the planning stage.

E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
E-learning	Educational	How well are the performance assessment strategies identified in the plan?
	Technological	How well is the technology infrastructure identified in the plan?
	Interface design	Has the plan addressed issues assimilating both the online learning and face-to-face lecture equally well?
	Evaluation	Has the plan included a comprehensive evaluation of learning environment? E.g. -instructor and staff evaluation , learners assessment
	Management	Has the plan identified the process of delivering supplemental print materials (if any)?
	Resource support	Has the plan clearly identified the number of hours for online technical support?
	Ethical	Has the plan complied with all the necessary legalities?
	Institutional	Has the plan acknowledged all the various methods for calculating ROI?

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Table 1: Review criteria for the planning stage

Review of e-learning- Design stage

This stage is carried out with a complete understanding of the following aspects;

1. Needs
2. Institutional capabilities
3. Experience in e-leaning design and research

The design team which is led by an instructional designer is responsible for *reviewing course content* for educational soundness and *choosing an appropriate method* or medium of training delivery.

In this stage the instructional designer works with,

- Interface designers
- Copyright coordinators
- Subject matter experts
- Evaluation specialists

The major product of an e-learning design process is the *storyboard*. The storyboard provides course-specific details from the designer, which is needed by developers (i.e. the Production team) to produce e-learning material on time and within a fixed budget. Table 2 provides sample review criteria for the design stage.

E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
Storyboard	Educational	How well is the instructional strategy used for each objective?
	Technological	How high are the e-learning standards for interchangeability of learning objects used throughout the course? i.e. shareable content object reference model- SCORM)
	Interface design	How well is the content structure, navigation and multimedia integrated if different delivery formats are used? So that learners can switch between different types without getting confused.
	Evaluation	How ell is the subject matter expert feedback incorporated, with regards to the storyboard?
	Management	How well does the storyboard use existing learning materials?
	Resource support	How well are content-specific online resources incorporated in lessons?
	Ethical	Has the content which requires copyright permission been indentified?
	Institutional	Can the organization offer the course independently as well as in a blended program?

Table 2: Review criteria for the design stage

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Review of e-learning - Production stage

In the production stage the production team which is led by the production coordinator, *creates the learning material* from the storyboard created during the design stage. This team, with the production coordinator as their leader executes the e-learning production process. Team members include, (but are definitely not limited to)

- Course integrator
- Programmer
- Graphic artist
- Multimedia developer
- Photographer/videographer
- Editor
- Learning objects specialist
- Quality assurance person

The production process is a time consuming effort which require collaborative process. The production coordinator makes sure each member does his part to ensure the timeline is maintained for all deliverables. Table 3 provides sample review criteria for the production stage.

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E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
E-learning materials	Educational	Is quality content being created? If so, how well are the learners responding to it?
	Technological	How do the course materials fare with the existing technology infrastructure?
	Interface design	Is it easy to use online course content?
	Evaluation	Is the content relevant to the course objectives?
	Management	The external links used in the course still active?
	Resource support	Is the online help (if any) still functional?
	Ethical	Is the course material designed, keeping in mind good cross-cultural sensitivity?
	Institutional	Is the course material developed, in line with the standards of academics and training of the institution?

Table 3: Review criteria for the production stage

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Review of e-learning- Evaluation stage

There are several elements of evaluation, which can be conducted during the over-all process of e-learning. These evaluations are performed to improve the standard and effectiveness of the e-learning materials. There are two types of evaluation-

- *Formative*, which is performed to boost quality of the learning product while it is being developed (i.e. during the content development phase).
- *Summative*, which is the final review of the learning product (performed during the content delivery phase).

In this stage instructional designers and interface designers review feedback from the learners' experience of the initial product. This feedback is communicated to the production team for necessary revisions and adjustments. Table 4 provides sample review criteria for the evaluation stage.

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E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
Revised learning materials	Educational	Is the presentation of the course content good enough for meaningful learning activities?
	Technological	Is the learning management system good in delivering and managing online content?
	Interface design	Are the learners satisfied with the over-all look and feel of the online content? If so, how much?
	Evaluation	From a real world perspective, have the learners felt like they've learnt anything?
	Management	Is the maintenance and management of various learning materials executed well?
	Resource support	Are the support services good enough?
	Ethical	Do the learning materials properly address the various ethical issues?
	Institutional	Does the course content uphold academic quality of the institution?

Table 4: Review criteria for the evaluation stage

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Review of e-learning - Marketing stage

The number of institutions offering e-learning courses is increasing rapidly. This provides learners with a wide variety of e-learning course options to choose from at different levels. It offers a wonderful opportunity for learners, but creates massive competition in the e-learning market.

Non-academic institutions and vendors, constantly compete with academic institutions. Fortunately, ongoing market research with e-learners provides an advantage over others in their e-learning initiatives. Effective marketing strategies will help institutions attract and recruit students for their e-learning programs. However, the strategy must involve *accurate information* about what the program has to offer. This team should include market researchers and recruiters. Table 5 provides sample review criteria for the marketing stage.

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E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
Marketed course	Educational	Does the course design embed an interactive and flexible learning environment?
	Technological	Is the effectiveness of the course improved with the incorporation of technology? If so, how much?
	Interface design	Do the over-all visuals and presentation contribute to the effectiveness of the content?
	Evaluation	For the purpose of academic performance measures, is the learners' assessment properly integrated into the course?
	Management	Is course material accessibility available round-the-clock?
	Resource support	Is the efficiency and effectiveness of the course improved with course resource support services?
	Ethical	Is cultural sensitivity and legal issues addressed in the course?
	Institutional	Has the course acknowledged all the various methods for improving ROI?

Table 5: Review criteria for the marketing stage

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Review of e-learning - Delivery and maintenance

Accessibility of all course materials to learners, anytime and anywhere is a key priority. Supplemental course material should be delivered to learners. E.g. CD, DVD, audio and video cassette, book, course pack, etc

This team consists of (but is not limited to),

- Systems administrator
- Server/database programmer
- Webmaster

They are given the responsibility of maintaining and monitoring the effectiveness and efficiency of a learning environment. Table 6 provides sample review criteria for the delivery and maintenance stage.

E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
Final e-learning materials	Educational	Is the course instructionally competent?
	Technological	Can learners access learning materials easily?
	Interface design	Is learning material navigation easy for learners?
	Evaluation	Are the assessments and evaluations of students as well as instructional/support staff sustained?
	Management	Are learning materials updated? If so, are they carried out efficiently?
	Resource support	Is the maintenance of resource support done well?
	Ethical	Are legal issues handled effectively and appropriately?
	Institutional	Are students receptive to course materials?

Table 6: Review criteria for the delivery and maintenance stage

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Review of e-learning - Instruction stage

The instructional and support services staff (ISS) includes (but are not limited to)

- Course coordinator
- Instructor
- Tutor
- Course facilitator
- Discussion moderator
- Technical support
- Librarian
- Counselor
- Customer service
- Registration
- Administrative staff

During this stage the ISS is at the forefront, communicating and interacting with students directly. The course coordinator must ensure registered students orientation for the course and ISS support. The coordinator is required to be in constant touch with the delivery and maintenance team to solve any technical difficulties that the ISS team encounters during the course. Table 7 provides review criteria for the instruction stage.

E-LEARNING PRODUCTS	THE 'STRUCTURE' CATEGORY	SAMPLE PERFORMANCE CRITERIA
Course Delivered	Educational	Do the instructors facilitate learning well enough?
	Technological	Do instructors make proper use of technology tool (webinar's etc) available to them?
	Interface design	Are online and offline activities integrated effortlessly during the instructional period of the course?
	Evaluation	Are students' assessments executed properly in the course?
	Management	Are the course content updates done efficiently?
	Resource support	During the instruction period, are resource support services provided properly?
	Ethical	Are ethical issues sensibly accommodated during the instruction period?
	Institutional	Are institutional and academic standards maintained during the instruction period?

Table 7: Review criteria for the Instruction stage

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CONCLUSION

The new advancements in e-learning sciences and technologies provides an array of opportunities to create,

- well-designed,
- learner-centered,
- engaging,
- interactive,
- affordable,
- efficient,
- effective,
- easily accessible,
- flexible, and
- meaningful e-learning environments

However, institutes who solely focus on the development and deployment of e-learning products should pay special attention to their return on investment plans. The *'who, how and what' progression* provides an all-inclusive picture of the e-learning process, which helps identify the role and responsibilities for the design, development, evaluation etc. of any blended e-learning solution.

On the other hand the *eLearning structure* helps us examine vital problems within the *eight dimensions of an e-learning environment*. It does this by integrating the 'who, how and what' progression model with the eLearning structure model. It provides, intuitive insights into what works, what doesn't and what needs to be changed.

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