CHAPTER 5

Reviewing a Project Concept

Objectives

After reading Chapter Five, you should be able to:

1. identify methods for evaluating development project concepts;
2. describe key questions to ask at the early stages of a development project;
3. utilize procedures for review; and
4. select alternative ways of presenting the results of review activities.

Why should you conduct review as an evaluation function?

The overall purpose of review as an evaluation function is to provide information to guide decisions about whether the original conceptualization for an interactive learning system has merit and is feasible given inevitable constraints on time and money. The development of an interactive learning system is not a project that should be taken on without careful consideration of the market for the program, how it will be distributed, what people are willing to pay for it, and how the program will be supported. The history of the development of interactive learning systems, from the earliest days of mainframe computers to today’s cutting-edge e-learning systems accessible around the globe via the Web, is marked by relatively few products that have been market successes. For every commercially viable product, such as The Learning Company’s Where in the World Is Carmen Sandiego?, there are scores, if not hundreds, of failed products.

As illustrated in Figure 5.1, several different types of decisions must be made when the development of a new interactive learning system is first being considered, each of which is tied to one or more specific questions that can be addressed by review activities.
### Obscure beginnings

Often the source of many interactive learning projects is shrouded in mystery or at least hard to pinpoint. Whether a development project arose from discussions at a corporate team meeting, the report of a critical incident, the reflection of an experienced instructor who happens to mention that students always have problems learning about topic X, or even the whim of an educational administrator just back from a technology conference, the birth of a project concept initiates a process which has many points of review aimed at the basic question, “Is this project worth doing?” At first, the project concept may be very sketchy and the idea largely untested, but it is from such obscure beginnings that successful projects have been developed. Although there is no substitute for creativity, the success of information collection during the early review phase of a nascent project will suggest the best directions for the project and often reduce the time spent on wasteful activities that do not support the project’s ultimate goals.

### Starting points

... Teaching is a rhetorical activity: it is mediated learning, allowing students to acquire knowledge of someone else’s way of experiencing the world. (Laurillard, 1993, p. 29)
Diana Laurillard, from the Open University in the UK, has presented a framework for examining academic learning by describing a model that focuses upon how the student comes to know about the world and how it is described. From her extensive experience with mediated learning in distance education, Laurillard has generated a view that emphasizes the role of the instructor (or instructional designer) in creating a view of the world and introducing the language which is used to describe it. This is an important starting point for any interactive learning system, as it focuses on the very task the designer of an interactive learning system desires to achieve. At the end of the project, there will be a particular representation of ideas and phenomena which are the substance of the interactive learning system. The project designer must also make decisions about the different ways the ideas are described, represented, and manipulated. It is this last attribute, manipulation, which is unique to the interactive experience in that users can undertake tasks with interactive materials in distinctly different ways from traditional textbooks or linear media.

As noted above, the idea for a new project may come from many sources. First, the idea may originate with someone who has extensive professional experience. For example, a statistics professor may identify areas that students have perennial problems in grasping, such as understanding the type of measurement scale that is being used. An interactive system that will represent these measurement principles in new ways may be extremely useful in enhancing student learning.

Alternatively, a project such as the development of a software package which allows students to undertake complex tasks (e.g., brainstorming) might begin with a sudden insight into a link between previously disparate elements. An interactive program may be produced to allow people to reorganize the ideas flowing from a brainstorming session into concept maps. This project germination might be driven by a link between a knowledge of software engineering and a programmer being introduced to a new graphical way of visual thinking.

Or, a new project may be simply a logical extension of a set of previously successful products or programs. For example, a publisher could decide to create an interactive Web site based upon a successful textbook series. The extension to the Web may provide a useful way of allowing students alternative ways of manipulating and accessing the information in the books. Indeed, this format could enable different learning strategies than afforded by the printed versions. Of course, the primary motivation for the publisher is the goal of selling more textbooks.

Each of these project ideas is founded upon the belief that the resulting interactive learning system will be useful to its intended audience and

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More information about Laurillard’s work can be found at: http://www2.open.ac.uk/lto/index.htm
could even be a marketable product. So how should these initial project concepts be evaluated? One starting point would be to confirm that such a development would be a novel one or at least competitive with other approaches. Thus, comparing the project or product concept with other similar products is an obvious first step.

A number of years ago, one of us came up with a project concept aimed at developing software to help students generate alternative ways of looking at careers and career choices. In this project, we started the review process by looking at other software that was being sold in the same area. As we examined the software, we looked carefully at the approaches taken by the designers to present ideas and how users were (or were not) allowed to manipulate elements of the programs. After reviewing existing software, we determined that most of the current software focused on a prescriptive approach, i.e., the student took a test and then the software suggested an occupational choice or choices. As a result of this review, we concluded that our software should enable a more exploratory approach to the task of finding a career. We wanted students to discover the impact of actually manipulating the variables involved in career decisions so that they could see how each contributed to the final choice. With this approach, students would be able to respond to a series of preference questions to generate their own unique preference profile. Then, they could modify the profile and see how the changes they made affected the final suggested outcomes. Using these ideas, we wrote a brief project concept statement. The project concept statement was adopted by the project management team on the basis of this inherent difference between the design of our proposed software and the existing products. The generation of this alternative approach to the task of career advice was considered the main purpose in this project, and the element which would make it unique and potentially useful to the target school population.

**Providing evidence to evaluate the concept**

Three typical starting points for interactive design projects were outlined above: (1) detecting learning problems, (2) combining new ideas, and (3) building new products within an established area. These are just examples, and it should be clear that interactive projects get started in many diverse ways. In any case, each of the starting points described above will require different types of review evidence to assess their likelihood of being turned into successful, complete projects.
Project concepts based upon learning problems

If project conceptualization originates from learning problems that have been detected, then the advice provided by Laurillard (1993) neatly summarizes the starting points for many interactive learning activities. She begins with two known sources of learning difficulties, alternative conceptions and difficulties in generating and interpreting representational forms. She then suggests that developers address a series of questions:

- What technical terms have everyday meanings that could lead to their misinterpretation?
- What kinds of naïve conceptions might be prevalent in this topic?
- In what ways might the internal logical structure of the main concept be distorted?
- Which forms of representation (linguistic, notational, diagrammatic, graphical, symbolic, iconic, numeric) are difficult to handle? (p. 193)

Evidence that can be used in reviewing this type of design concept is the same kind of evidence that is often collected as part of Maintenance Evaluation (see Chapter Ten). In an academic setting, this data may be standard performance data on tests and examinations. Frequently missed items may indicate areas of difficulty for students, or they may be poor test items. Other data may include the number of times a particular learning resource, e.g., a course Web page, is used. A decline in access rates would indicate that either the resource was no longer working, that it was no longer required as part of a course, or that students perceive it as irrelevant to their learning. The number of times students request assistance with a task may also indicate the need for an interactive product that would remedy a learning problem.

Thus, the main questions to ask in this type of situation are:

- What is the nature of the learning problem?
- What hard evidence can you show that the problem is authentic?
- What misunderstandings between expected and actual student learning would explain the nature of the problem?

During the review stage of a project concept, it is unlikely that you will be able to collect complete information about the nature of the learning problem. Such insight may not be available until a thorough needs assessment is done (see Chapter Six). What is required at this phase is a sensitivity to the context and an informed understanding of current developments and trends with respect to learning in the area of focus. For example, in science education today, it is widely recognized that students often fail to construct robust mental models of fundamental
scientific principles such as force and acceleration. This gap has led some to propose the development of e-learning courseware that would enable students to challenge their naïve theories of these phenomena and contrast them with real-world data. A complete needs assessment would help to reveal the full nature of students’ misconceptions. Decisions and recommendations based upon review data should be made with the understanding that there is always a margin of error.

In education contexts, projects are usually driven by learning problems, whereas in the training world, projects are more likely to be driven by performance problems. Slumping sales or increased job-related accident rates are two examples of performance gaps that may lead managers to conclude that the development of a new interactive training system should be supported. The main questions to ask in this type of situation are:

• What is the nature of the performance gap?
• What hard evidence can you find that the performance gap is authentic?
• What are alternative explanations for the difference between expected and actual performance?

Interviewing employees and their supervisors may reveal that the causes of the performance problems will not be remedied by interactive training. For example, slumping sales may stem from the fact that a competitor has released a better and less expensive product. Or the sales commissions for the sales personnel may have been reduced. Industrial accidents may stem from low morale in the wake of an impending plant closure. The assumption that a performance problem warrants a new training program is one that should be examined closely during the review phase. As Rosenberg (2000) points out, training is the “default” approach to performance problems, but it is not always the best solution. Careful review of an e-learning project concept will avoid the expensive development of training that no one needs.

Project concepts based upon new ideas
If the project represents the combination of new ideas, then exposing the concept to a number of experts in the knowledge domain may be appropriate. For example, suppose you want to develop a new concept mapping tool to assist users with limited confidence to generate new ideas and build alternative representations of them. In evaluating the potential of this project, you could describe a number of different ways of generating and representing ideas so that these ways can be reviewed by a group of creativity experts.
Questions to ask the experts might be:

- Has anything like the proposed software been developed before?
- Does the proposed product follow established practices or current theories for how brainstorming should be undertaken?
- What would you expect people to pay for this type of software?

The experts may tell you that there is software already available that does what you have proposed. On the other hand, they may find the idea so compelling that they want to become involved in its development. One way the data from a project review might be collated is in the form of a matrix in which a comparison of options is made for a series of attributes. Figure 5.2 presents an example of a matrix charting the attributes of existing and proposed products under comparison.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Product A - Existing</th>
<th>Product B - Existing</th>
<th>Product C - Proposed</th>
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</thead>
<tbody>
<tr>
<td>Cost</td>
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<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Features</td>
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<td>23</td>
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<td>Complexity</td>
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<tr>
<td>Marketshare</td>
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<td>20%</td>
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Figure. 5.2. Matrix to chart comparative attributes.

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A source to find information about interactive training products in the training world is: http://www.trainingsupersite.com/

**Project concepts based upon new products in established areas**

The third type of project concept stems from the desire to develop an interactive version of a static medium. Suppose you want to develop interactive versions of popular health or diet books. The publishers would know about previous book sales, but they might not be able to tell you anything about the size of the market for interactive options in this area. Catalogs and Web resources should be consulted to determine what products are currently offered in this area. If other interactive learning products exist, they should be reviewed to determine if they use a less than optimal learning strategy. It is also important to keep in mind that with interactive learning systems, there are competing delivery options. Imagine that you want to develop a CD-ROM version of a best-selling book called “Eat Your Way to Good Health.” If you only reviewed competing CD-ROMs, you would miss interactive products that are available via other delivery modes, such as the Web or DVD.
In this type of situation, we might ask questions such as:

- What are the competing products?
- Do they cover the same knowledge domain?
- Do they employ the same learning strategies?
- Is this particular delivery technology the most appropriate for the potential audience?

The answers to some of these questions are likely to be found in industry magazines or Web resources that project sales or report on unit sales for different types of interactive products. People with new project concepts will inevitably be tempted to answer questions about the viability of their product ideas superficially or with the “rose-colored” bias of wishing something to be the case. Thirty years ago, we were told that the answer to home use of video would be an “EVR recording system” (a system in which the video program was recorded onto 8mm film by a commercial provider and replayed in the home through a scanner connected to a television set). This EVR system would have met anti-piracy and quality reproduction requirements, but nowadays, no one has even heard of such a technology. Indeed, it was a great solution until someone invented the VCR and the videotape cassette. And even VCRs have had a complicated evolution. Consider the demise of the Sony Beta format videotape recorders. Even though the system was better technically, it never overcame the marketing and penetrating competition of the VHS recording system.

What is an interactive learning project seeking to do?

Most interactive learning systems are intended to achieve some learning outcomes, and so as part of a review for a new project, you should consider how users will be able to demonstrate that they have achieved the intended learning outcomes. The assessment methodology should match the intended outcomes. This may seem too obvious to mention, but we have observed that many projects are seemingly conceived without a clue about how or whether outcomes might be assessed.

In addition, if the resultant project is supposed to be interactive, then it is extremely important that the review process also enable the interactivity claim to be validated. Interactivity has many meanings within the context of interactive learning systems, ranging from simple “page-turning” to high-fidelity simulations (Sims, 2000). You can address the interactivity issue in the early part of the design process by employing a three-level approach (see Figure 5.3).
The model in Figure 5.3 addresses a set of three concerns, which should be addressed in an iterative manner:

1. What knowledge domain is the project trying to address, with what audience, and to what end (Project Space Definition)?

2. What instructional strategy is being used (Interactivity Design)?

3. How is the underlying knowledge domain represented to the user, and how can the user manipulate that domain using the chosen strategy (Interface and Presentation Design)?

The model in Figure 5.3 is presented at this point because it is important to identify the stage of development of the project before you begin your review. If you are called upon to provide advice at the lowest level, the types of data you can obtain will either be historical or based on sketchy prototype designs. As the project design becomes clearer and other layers further up the diagram are described more precisely through design briefs, then your review can be focused more
tightly. On the other hand, the later the review starts, the less likely the design will be informed by its results.

At the first level review, you are seeking to answer three questions:

- What learning task is the project trying to accomplish, and in which knowledge domain?
- For whom is it intended?
- Why is it being attempted at all or what drives this project?

Essentially, your answers to these questions will define the project’s conceptual space. The review results will support some approaches to the initial design and debunk others. We have suggested a range of information sources above (e.g., consulting experts or reviewing competitive projects), but the actual data sources you use will be unique to the context of the project.

For example, if you were thinking about producing interactive course-ware to help middle school students develop robust mental models of scientific phenomena, it would be wise to interview middle school science teachers to determine the degree to which they focus on such higher order learning outcomes in their teaching. The recommendation to “build it and they will come” sounds appealing, but many interactive development projects have floundered on this assumption. Estimating the market for new products is always difficult, and you may need to hire special consultants in this area. Or you may wish to take a business course that focuses on market-risk analysis for new products.

Presenting the results of review activities

It is always possible to present review results and make recommendations in traditional text formats. However, we recommend that you consider, especially in the early review stages, a range of other options for presenting results. Alternative methods might enable the development team and management group to see ideas in a different light or to perceive unexpected relationships between ideas. In this section, we want to encourage you to go beyond checklists or textual descriptions to find alternative ways of presenting ideas, since traditional methods often fail to show how ideas interrelate or which ideas are more important than others within the knowledge domain of the project.

One approach to collecting and representing project ideas to others is through the use of visual mapping techniques. It is possible to collect massive amounts of data through brainstorming or surveys, but unless
you represent the data using some of the following visualization techniques, you will only have ideas that are not linked to each other.

**Summarizing ideas with a concept map**

Concept mapping (Novak, 1981, 1998; Van Patten, Chao, & Reigeluth, 1986) is a useful strategy for sorting out initial concepts. It allows you to combine elements into meaningful statements or propositions. Links then enable you to begin to see the relationships between concepts and build on the conceptual framework. A concept map (see Figure 5.4) is a two-dimensional diagram representing the conceptual structure of subject matter.

![Concept Map](image.png)

**Figure 5.4.** Concept map of a knowledge domain.

To construct a concept map:

- Identify the concepts and principles to be included in the application. A good beginning technique is to write each concept on a small Post-it note that can be posted to a large sheet of paper or a whiteboard for easy manipulation.

- Arrange the content elements in a hierarchical order from general to detailed, top to bottom (or bottom to top). The most general, most inclusive concepts are placed at the top (or bottom) and the more specific concepts in two or more “levels” below (or above) them.

- Draw a line between each two related elements to show the linkage, and write on it the proposition that makes the link. In the ex-
ample in Figure 5.4, the concepts “simulation” and “interactive technologies” are linked by the word “requires” to form the proposition “simulation requires interactive technologies.”

Joseph Novak (1981) identified three criteria of effective concept maps:

- Does the map show a good hierarchy? There is rarely a “best” hierarchy, but you should consider whether the concepts and propositions shown represent an acceptable order in terms of moving from a more general, more inclusive concept to a less general, less inclusive one as related to the particular study material.

- Are the propositions shown valid and “correct”? Are all concepts “connected” into propositions?

- Are there “cross-linkages” between map segments? Do directional arrows make sense within the context of the knowledge domain?

Consider the concept map in Figure 5.4. It is designed to illustrate how elements of a typical knowledge domain (in this case, interactive learning systems) might be interrelated. Is it adequate? How does it differ from a mere list of concepts related to the topic?

**Showing interrelationships by networks**

Another form of representing ideas is a network (see Figure 5.5), where you identify the important concepts or ideas and describe the interrelationships among these ideas in the form of a network diagram using nodes and links. The network diagram provides a visual, spatial organization of the information and helps you see an overall picture of the material. A network can be used as an advance organizer for the design of an interactive product. Networks can be examined by experts to determine whether they are incomplete or inaccurate. They can indicate the degree of comprehensiveness of planning as well as possible misconceptions that might be inherent in a project plan.

A network representation can provide a description of the knowledge domain that should inform the development of an interactive learning system. It also can demonstrate how the information might need to be accessed by users. One of the key elements of interactive learning systems is the idea that they can provide many paths into the same information structure. A network can indicate how information should be presented and re-presented as the nature of the question or search by the user changes.

Consider the network illustrated in Figure 5.5. It is a map that shows the various data sources in a CD-ROM entitled *Exploring the Nardoo*
(1996). Note, in particular, the resources have been designed to be retrieved either by investigation at the problem level or through a comprehensive index of the materials located elsewhere in the package. Also note the positioning of the help structures, which are located so that they can be accessed at any point. The help focuses on supporting not only the finding of resources for the problem solution, but also on suggesting a process through which the problem might be solved. This synchronization of content, function, and cognitive process becomes very important in interactive learning systems. It is clear in Figure 5.5 that the focus of the project is the embedded problems; the network emphasizes this perspective.

**Figure 5.5.** Network diagram of elements within a multimedia CD-ROM.

**Creating areas of mutual interest by mind maps**

Another form of representing initial ideas is a mind map (see Figure 5.6) in which a central organizing idea is broken into smaller ideas and each of the contributing ideas are linked by writing a description along the link lines. Mind maps are somewhat easier to draw for some people than more spatially-related concept maps or network diagrams.
In the example illustrated in Figure 5.6, we have represented the concepts that should be considered when designing an interface for an interactive educational product. This type of mind map also indicates groupings that might be discussed meaningfully together. In our design work, we have found that this type of visualization can inspire early design concepts for navigation and screen design.

![Mind map for issues required to design an educational interface.](image)

Concept maps, network diagrams, and mind maps are not end products in themselves. Instead, they are valuable tools for use in planning a project, and allowing others to review the initial conceptualization of a new interactive learning system. Creating maps and diagrams is not easy or automatic, and most people will require some practice before they become adept at using these and other visualization techniques. However, these types of visualization techniques are used increasingly in business and education (Novak, 1998), and the well-skilled evaluator should develop some expertise with them.
Other important organizing influences

There are three other theoretical and practical issues that are worth considering during the review stage for a new interactive learning system. These are:

- Expert versus Novice Perspectives
- Information Processing
- Usability

Developing expert versus novice perspectives

When conceptualizing the design of a new interactive learning system, attention should be paid to the different cognitive characteristics of experts and novices within particular performance domains. In planning for an interactive product, it is important to elicit information regarding how experts and novices differ in the content component of what they know and in the set of processes they use for performing a sequence of cognitive actions on the content (Chi, Glaser, & Rees, 1982). If an interactive learning system is designed solely from an expert perspective, the system is unlikely to provide sufficient “scaffolding” (Hogan & Pressley, 1997) and cognitive support required to help novices develop more expertise.

The expert knows more domain-specific concepts than the novice, and these concepts appear to be more differentiated and interrelated, with each of the expert’s concepts closely connected in long-term memory with many other concepts. Hence encoding, storage, and retrieval are facilitated. In addition, the expert is more likely than the novice to use cognitive strategies such as planning and analysis before processing information. This simplifies the processing procedure as the expert calls to mind appropriate templates for cognitive action from a rich “bank” of stored experiences and memories. In other words, the expert’s response can be more “automatic,” unconscious, and effortless (Shuell, 1990; Sweller, 1993). The differences in processing between experts and novices require that multiple starting points and access/retrieval strategies be devised into an interface for interactive learning systems.

Information processing

As a way of evaluating the proposed structures of an interactive learning project, look carefully at how information processing is supposed to occur. Examine the extent to which information processing tasks are integral to the learning outcome. John Anderson of

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Information about John Anderson’s work is at: http://act.psy.cmu.edu/
Carnegie Mellon University has proposed an Adaptive Control of Thought (ACT) system (Anderson 1982, 1983, 1990; Lohman, 1989) to support interactive learning. Anderson claims that the acquisition of new knowledge is related to three processes: the expansion of declarative knowledge, the development of procedural knowledge, and the transaction between the two.

Declarative knowledge is our knowledge about things. This knowledge is hypothesized to be structured as an interrelated network of facts that exist as propositions. In other words, we don’t know ‘Blue Green Algae Bloom’ as a static concept, but rather we know about the concept ‘Blue Green Algae Bloom’ because of its relationship to a number of other concepts such as scientific theories about ecology, how algae blooms can be measured, algorithms for modeling them, and so on. Any one concept is networked with any number of other concepts, and it is this networking that ultimately gives the concept meaning and enables us to remember it. The richness of the networking ensures that particular concepts are more memorable and can be more easily retrieved from long-term memory. In essence, Anderson is proposing a method for representing what cognitive psychologists have termed a schema. A schema for the concept ‘Blue Green Algae Bloom’ illustrating declarative knowledge is presented in Figure 5.7.

![Diagram](image)

**Figure 5.7.** Anderson’s ACT schema for a Blue-Green Algae Bloom problem.

Procedural knowledge is knowing how to perform various cognitive activities, such as how to calculate the size of an algae bloom using a formula. In this case, there is a transaction between the declarative knowledge and the actions performed upon it (procedural knowledge).
In Anderson’s conception, when encountering new information, the learner seeks to place it in some relationship with existing propositions and ideas. Different nodes in the network may have different strengths that reflect, among other things, the degree of practice associated with the node. New knowledge links will be stronger or weaker depending upon where and how easily they are placed in the schema and how the new knowledge is used in the course of working through problems or tasks that are presented with an interactive learning system. The declarative knowledge is compiled into higher-order procedures (called productions) that apply the knowledge to solve problems. These productions are in the format “if a certain condition holds, then perform a certain action.” When reviewing interactive project design concepts, the more successfully remembered links will be those that are well supported by logical relationships and that require the learner to construct ideas in some logical relationship.

As the user attempts tasks within an interactive learning system, the tasks are either supported or refuted by the package, and thus the learner’s understanding of meaning is either confirmed or diminished. Confirmed “productions” are the learning and understandings of the relationships among concepts supported by the package. In any interactive learning system project review, the coherence of a plan for the presentation of declarative and procedural knowledge and its execution will be critical to the effective use of the technology. Clear expectations about the schemata involved and how they will be supported by the project will be an important basis for review.

**Usability**

The cognitive load demanded by the information processing related to learning should be within the capabilities of the learner. Cognitive load refers to the mental processing capacity for learning that someone has at any given moment. Cognitive load is affected by factors such as intelligence, interest, fatigue, anxiety, distractions, etc. For example, although some learners may be able learn while a television is on or a radio is playing, others will find that their concentration and cognitive load capacity are diminished by such environmental factors.

With respect to interactive learning systems, the capacity to process information is decreased if the user must devote too much mental processing to understanding the interface of the program. This relates to the concept of usability (Nielsen, 1993). According to Shneiderman (1987), the usability of any type of computer program is determined by a combination of five user-oriented characteristics: (1) ease of learning, (2) high speed of user task performance, (3) low user error rate, (4) subjective user satisfaction, and (5) user retention over time.
Although usability testing (Nielsen, 1993) is normally employed as a formative evaluation process (see Chapter Seven), it can be conducted during the review stage, provided that simple mock-ups of screens and interactions can be created. The usability of Web-based interactive learning systems is especially challenging (Nielsen, 2000). In fact, usability is a moving target in light of the ever-increasing complexity of interactive products and the evolving technical skills of the general population.

**Estimating project scope**

Another big area of concern during review is the estimated size and scope of the project. Consider asking the following questions:

- Is the project a simple application similar to those that you or others have created, or is it so novel that major investments of people, money, and time will be required for its development?

- What is the most expedient approach to project development considering the intended scope and size?

- Does the way in which the user will manipulate the concepts and ideas in an interactive learning system need to reflect the way a person would manipulate them in professional practice?

The first two questions are straightforward, but the answers can help avoid an uneconomical approach to project development. If the likely audience is small, ask yourself whether the product is really going to be worth the proposed time and investment of money and people. There are many answers to these questions, but understanding the audience and the context of use is critical to the amount of resources invested. To address the third question, consider the task of training automobile drivers. It is possible to create a series of multiple choice questions to test the knowledge domain which all drivers must know, and many states in the U.S. include such a test as an integral part of the process of issuing drivers’ licenses. It is also possible to develop a test with authentic video representations of driving and simulated steering and pedals to test specific driving skills and response time. This second form of interaction is likely to be more valid in that you can measure a wider variety of variables, such as reaction time and complex control sequences in ways that the multiple choice questions would never allow. The latter will be much more costly to develop, and such a high-fidelity simulation approach must be carefully justified during the review process.
Alternatively, an interactive system may be designed to simply present a series of information items. This is not necessarily bad in itself, but such presentations do not always motivate learners to use them. Such a system may be enhanced if the user can do things via the technology which takes the experience beyond that of turning pages of a “book.” A critical factor will be defining the tasks that users will be challenged to complete while engaged in the program. For example, an interactive learning system can provide multiple ways of searching for information, but searching is a means to an end rather than an end in itself. Searching should serve some task. Ideally, the task will be as authentic as possible and closely linked to the learner’s interests.

Incorporating any given feature, such as searching, into an interactive learning system, will demand careful review of that feature’s importance and the cost and effort required to produce it. Consider whether a program will allow users to search by media format or by a keyword that collects information irrespective of its form of media format. Students seeking information about the Titanic may wish to retrieve information about the ship’s design, the latest film made about the tragedy, or pictures of film stars who might have appeared in the many films about that “night to remember.” However, the more elaborate the search strategies that are enabled within the program, the more complicated and the more expensive the design and production process will be. Careful review should help you to determine the relative importance of such features.

In preparing a written review document, you will need to place the project idea in its appropriate context. Consider the outline illustrated in Figure 5.8 as the basis for your report.

<table>
<thead>
<tr>
<th>Overview of the Project</th>
<th>Assessment of the idea</th>
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<tbody>
<tr>
<td>Technical Feasibility</td>
<td>Technical platform/hardware issues</td>
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<td>Product design</td>
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<td>Potential Marketing</td>
<td>Publishers and their specialties</td>
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<td>Software developers and distributors</td>
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*Figure. 5.8. Outline for written review report.*
Summary

As the first phase in the evaluation process, reviewing the project concept essentially involves trying to describe the ideas underlying a project and how the developers plan to execute the ideas. Review is not often included as a formal evaluation phase in existing evaluation models. It is more likely that you will be asked to “scope” out a project which is essentially the same as conducting a review. The paramount question is: “Is this project worth doing by the means the designer or project originator is suggesting?”

Your overall goal in conducting a review is to decide whether the project should make it to the next phase of the instructional development and evaluation process, i.e., a full “Needs Assessment,” which is the subject of the next chapter.

References


