The English Teacher Vol. XXXIX: 142-163

DESIGNING AND EVALUATING A WEB-BASED LESSON FOR ENGLISH LANGUAGE INSTRUCTION

P. Thivilojana S. Perinpasingam
Rohini Balapumi
Taylor's University

ABSTRACT

As students find different learning resources on the Internet, they become active participants in their quest for knowledge. Incorporating Internet in the classroom provides students with more opportunities to structure their own learning. This paper reports on the results of the design and evaluation process of a web-based lesson which was developed by the researchers and used as an instructional tool in an English Language classroom. The design and development process was based on Dick and Carey's (1990) model. Evaluation and the revision processes were conducted at the same time. The formative evaluation of this web-based lesson involved three language lecturers and three instructional technologists. A summative evaluation was carried out by a group of six students. The three main elements for the evaluation was based on Kristof and Satron (1995), who suggest that an interactive learning system can be separated into information design, interactive design and presentation design.

Introduction

Technology can be integrated into various teaching styles. According to Gagne (1985), teachers are suitable human models to stimulate alteration in attitudes. For this reason, web-based learning provides students and teachers various opportunities to make language learning more effective and enjoyable. The purpose of this study is to design as well as to evaluate a web-based lesson in English language that will offer comprehensible information in multimedia form, and is designed to cater to different individual learning styles. Furthermore, this web-based lesson offers communication beyond the computer, and also provides meaningful feedback and guidance.

Objectives and Research Question

This study investigates the criteria involved in designing and evaluating web-based lessons to enhance interactive teaching and learning of English language particularly in Malaysia. The aim is to determine variables which are important in designing and evaluating English language instructional materials. Specifically, this study aims to answer the question: What are the criteria involved in designing and evaluating a web-based lesson for English language instruction?

Significance of the Study

This teaching input offers an alternative or option to teachers so that they do not need to depend solely on printed materials and CD-ROMs which are costly. In addition, a web-based lesson facilitates independent learning, and thus the restrictions of time and space can be overcome.

Literature Review

The World Wide Web is a rich site for tapping new learning resources, allowing teachers and students to explore the world of knowledge with a click of the mouse. According to Owston (1997), one of the major benefits of using the web for teaching and learning is that it favours student-centred learning as opposed to traditional teacher-centred learning. The two issues discussed in this section are the effectiveness of online teaching as well as the role played by a web educator.

Below are five "I"s of effective online teaching suggested by Olcott et al. (1999) who conducted extensive research in the development of distance learning education:

a) Interaction occurs when there is communication between the students and the instructor, students with other students, and also between the students and the course content. The interaction exists because the information in print materials is linked to the Internet for interaction purposes. Therefore, due to the depth of the discussion conducted, such interaction can help improve student performance in terms of higher order thinking.

b) Introspection refers to interpretation, revision and demonstrating the understanding of concepts. E-mails, graphics and even audio and video clippings can be effective tools to encourage introspection.

c) Innovation refers to integration of facts, concepts, theories and practical application of knowledge.

d) Using interactive quizzes, print exercises and role-play can create an avenue for interaction among the users. These collaborative activities can easily be accomplished in an asynchronous environment.

e) Information refers to the knowledge and understanding that is a pre-requisite for students to move to the next level of learning.

Olcott et al. (1999) further add that instructors should design courses with learning objectives in mind, building learning activities that allow students to reach the objectives. The technological tools and instructional modules should be chosen to match the objectives in order to achieve the learning outcomes. He states:

> Any technology can disseminate information; the instructor must create interactive opportunities and assess whether students have the basic knowledge to move forward to the next level of learning. (p.39)

In short, Olcott et al.'s (1999) discussion makes it clear that online teaching is useful for delivering a course which can improve higher order thinking skills because it allows learning from various forms of media in the form of images, interactive learning tools, online tests and online games as well as communicative tools like email and forum. These features of online learning can help improve retention of information and increase motivation through sharing of information which leads to higher order thinking.

The Role of a Web Educator

In the 21st century classroom, the fundamental role of a teacher is to facilitate learning from the vast information available, and to help students develop their soft skills i.e. critical thinking, problem solving and decision making. According to Jonassen (1996), an online learning course improves student's performance, and supports two-way communication, not only between student and teacher but also between students and their peers. This form of communication helps to increase interest and motivation among learners.

Hence, web based educators can take on several roles such as facilitators, mentors or coaches. The creation of a new learning environment for web-based learning allows hands-on facilitation while students are learning.

Designing and Developing a Web-Based Lesson

According to Bostock (1996), developing instruction via computers and other media involves prior analysis involving the design, delivery considerations and evaluation. Its purpose is to create an activity to promote learning among students. In addition to that, Ritchie and Hoffman (1997) suggest that instructional design principles would shift the role of the web from information resource to instructional material. Further, Kristof and Satron (1995) mention that in order to create an interactive learning system, one can separate the design process into three elements or parts, information design, interaction design and presentation design.

Information Design

This encompasses the objectives and the learning outcome of a lesson, and analysis of the content which covers areas such as structure and organization of information. It also includes the types of instruction given.

Interaction Design

This focuses on navigation activities like the scrolling of navigation bars and

hypertext which provides guidance in orientating users to scroll for any information required. It also includes the use of communicative tools like emails and discussion and/or bulletin boards. Other features highlighted are links, glossaries and picture galleries.

Presentation Design

This includes screen layout, background colour, font size and also the use of graphics and animations.

Evaluation of a Module

Evaluation answers two complementary roles. In one context the aim is formative, aimed at improving the material. According to Bhola (1990), formative evaluation is conducted typically for development or improvement of a programme or product. According to Barba (1998), formative evaluation techniques include one-to-one testing, small group testing and pilot studies. In contrast, summative evaluation assesses concrete achievement. This form of evaluation views more than one learner's performance.

The success of the lesson depends greatly on its design and structure. In addition to that, a web-based lesson should contain clear objectives and learning outcomes with various sub-topics. Evaluation is necessary in order to ascertain the effectiveness of the web-based lesson.

Research Methodology

Presentation Design

When designing this web-based lesson, it was important to make certain that the interface and design arrangement were straightforward and consistent throughout the learning system. The aspects which were duly considered were the background colour, text, icons, media features and layout. In order to make the background simple, a white background was used for all the pages to facilitate reading. Calibri font sized 20 for the text was used. The font was chosen because it was simple and attractive. On some pages, simple animated icons were inserted to attract the attention of students. There were a number of graphics and simple two-dimensional animation cartoons which were included in the Homepage as well as in the exercises to further facilitate learning. This was to make the learning experience more interesting and enriching.

In addition, Gagne's (1985) Nine Events of Instruction (Table 1) was used to help in the selection of the learning activities, the resources and the choice of appropriate media. The web-based lesson was used in a foundation programme at a private

higher learning institution. The title of the website was "Reading Skills" and it was developed using MS Frontpage as the HTML editor. Most scripting was done using Javascript and Dynamic HTML. Perl script was used for server side processing and CGI (Common Gateway Interface) calls. The crossword puzzles were created using *Eclipse Crossword* software, and the online tests were developed using *Question Writer* software.

The design and evaluation of the web-based lesson involved formative evaluation and summative evaluation. Formative evaluation was conducted by interviewing three educational technologist and three English lecturers. The interview questions were derived from three elements of design in interactive learning suggested by Kristof and Satron (1995).

Next, evaluation was carried out using observation and semi-structured interviews pertaining to the web-based lesson. Evaluation and revision were done concurrently during the design and evaluation process. The module was revised and changed based on the findings from the evaluation by the ID experts and the lecturers before the module was provided to the students. The module was then used by a small group consisting of six foundation students. These students were selected because they were the top six high performers in the foundation programme.

Instrumentation and Data Collection

In the formative evaluation process a semi- structured interview and observation techniques were used to gather data.

The Instructional Materials

A web-based lesson developed by the researchers was used to teach English to Foundation students. The main reason for developing this web-based module was to diversify teaching and learning processes.

Evaluation Procedure

For the formative evaluation, three educational technologists who were instructional designers were interviewed. This was then followed by interviewing three English lecturers who were subject matter experts. They were briefed about the web-based lesson prior to the interview. For the summative evaluation, six students were guided to work with the web-based lesson. They were also asked to complete a lesson task and were later interviewed.

Data Analysis

The evaluation was based on Kristof and Satron's (1995) interactive learning system. The three elements were information design, interactive design and presentation

design. Three experts in instructional design and three experts in the content area participated in the formative evaluation of the web-based lesson. The three experts in instructional design had knowledge and skills in instructional design. They evaluated the structure of the objectives and learning outcomes, content delivery, presentation format of the links such as lecture notes, tutorials, tests and puzzles, and interaction (navigation and usability) and presentation aspects.

The content experts were three English language lecturers. They evaluated the content and information design. The lecturers had pedagogical and curricular knowledge in teaching English at tertiary level. They evaluated the objectives and learning outcomes, content delivery, activities, lecture notes, tutorials, tests and crossword puzzles, and also language accuracy.

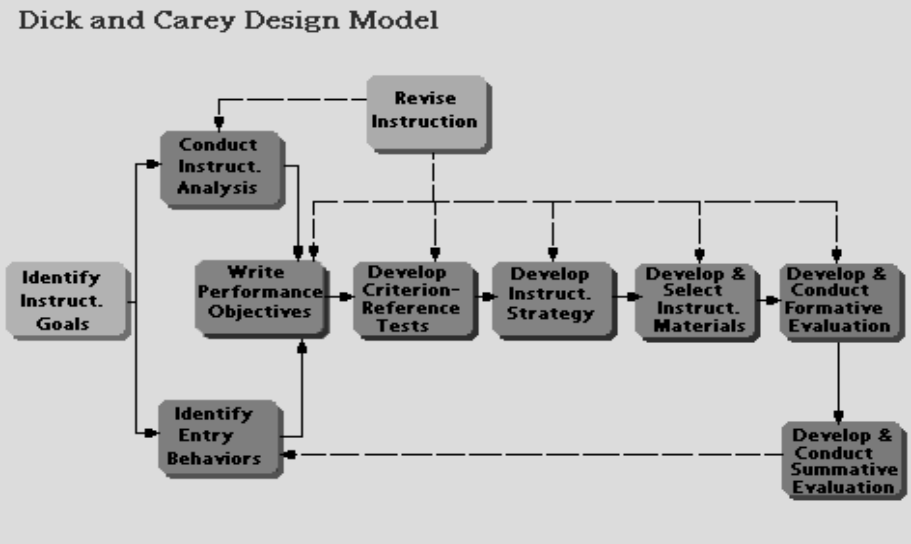

Figure 1 Dick and Carey Design Model
(Source: http://www.coe.ecu.edu/lsit/colaric/KB/DickCarey.html)

The web-based lesson was developed based on Dick and Carey's (1999) model (see Figure 1). The first stage, as shown above, refers to identifying instructional goals, and is about the target of the module. Since the title of the lesson was Reading Skills, the students were introduced to the following sub-topics which were taken from the course outline: Reading Comprehension Skills, Integrated Reading Strategies, Types of Questions that are found in a comprehension exercise, and Ways to read Quickly and Effectively.

The second step was conducting the needs analysis. Even though this step was not included in Dick and Carey's model, it was combined in the design activities in order to help the researchers identify the needs of the target learners. The feedback obtained was that current lessons were very teacher-orientated and not interactive. Thus, the students needed a new and more challenging platform to overcome this, and the new platform selected was a web-based lesson. It was found that students had basic computer and Internet skills. Findings from the informal interview were analyzed. The lecturers also agreed that a web-based lesson could be used to motivate and enhance the teaching and learning of English. Apart from that, it could be used as an alternative medium for teaching and learning, engage learners interactively as well as diversify the delivery of lessons.

The third step was to identify entry behaviour. A print-based activity was given to six foundation students in order to assess the student's proficiency level as well as their prior knowledge.

The fourth step involved the writing of the performance objectives. Performance objectives are stipulated descriptions designed to help the students stay focused and achieve the intended learning outcome. The objectives and learning outcomes were provided to the students.

The fifth step was the criterion referenced test. The assessment included items or performance tasks that measured skills related to one or more of the behavioral objectives. Hence the web-based lesson contained interactive lessons such as online quizzes, tutorials and tests as well as cross-word puzzles that could further enhance students' learning experience. The activities mentioned above cater to various modalities of learning.

The sixth step was developing the instructional strategy. The purpose of this step was to include instructional activities that would help achieve the objectives. The lesson contained learner-centred activities and the educator played the role of facilitator. For instance, the online tutorials and tests allowed students to explore the exercises and do the tests at their own pace during their free time. In addition, Online Test 2 allowed students to post their responses and receive feedback via email from their lecturer.

The seventh step was developing and selecting the instructional material. This stage involved the use of the stated strategies to produce instructional materials. The web-based lesson was based on an English Language lesson taught in a foundation level course with the heading "Reading Skills".

The graphics and animation inserted in this lesson were taken from three free websites namely www.ButtonGenerator.com, www.dynamicdrive.com and www.free-graphics.com. A variety of activities were included to increase retention and enhance the transfer of knowledge.

The eighth step involved developing the tools for formative evaluation and conducting the evaluation. This was done to allow for changes aimed at improving the instructional materials. The formative evaluation was done by interviewing three post graduate students in instructional technology who have knowledge and skills in instructional design as well as three lecturers who were content experts. Changes were made based on the feedback received.

The ninth and the final step was to develop tools for the Summative Evaluation and conduct the evaluation. Here the web-based lesson was carried out with a group of six foundation students. Later, they were interviewed by the researchers.

The findings from the needs assessment were used as a basis in the designing process. The three areas focused on in designing the web-based lesson were information, interaction and presentation.

Information Design

In designing the web-based lesson, the content was organized into an appropriate sequence based on the target audience and the learning environment. Content materials were developed using the Microsoft FrontPage authoring tool and Microsoft Word as these were simple and user-friendly. The materials were then uploaded to the internet using a free hosting service called *freehostia.com*. These user-friendly software and services can be used by lecturers to develop their own interactive lesson.

When users keyed in the Uniform Resource Locator (URL), http://readingskills.freehostia.com, it allowed students to access the homepage. This homepage served as the introductory page and contained information about the lesson. The website contained a collection of lectures, tutorials, tests, crossword puzzles and a feedback form for users provide feedback to the researchers. Apart from this, graphics and simple animations were also used to attract the learners.

Gagne's (1985) Nine Event of Instruction (Table 1), which is a teaching and learning strategy, was used to match task requirements with learning performance. In *The Conditions of Learning* Gagne emphasizes the information processing model and the mental events that occur when learners are presented with various stimuli, enabling learning to take place.

Table 1: Gagne's Nine Instructional Events

1.	Gain learners' attention
2.	Inform learners of the objectives
3.	Stimulate recall of prior knowledge
4.	Presentation of the content
5.	Provide "learning guidance"
6.	Elicit performance
7.	Provide feedback
8.	Assess performance
9.	Enhance attention and transfer to the job

The main page followed the first step in Gagne's Nine Instructional Events that is, gain learners attention, and served as a stimulus to arouse the learner's interest about the topic "Reading Skills". It informs target audience about the objectives of the lesson so that they area aware of the scope of each lesson.

Learning outcomes were provided to inform the learners about the knowledge and the skills they were expected to gain after the web-based lesson was explored and completed. This is the second step in Gagne's Instructional Events, informing the learners of the objectives and learning outcomes.

The third level in Gagne's instructional events involves learners recalling prior knowledge. The students were asked to click on the text link *Do I read every word in a passage?* provided in the home page. The above question would enable learners to identify topic and at the same time encourage them to recall their prior knowledge concerning it. Notes and links were also provided for the students to explore the content. Upon clicking on appropriate links, students were able to access the lecture materials as well as attempt the activities available in the web-based lesson.

The fourth level in Gagne's instructional events involves providing the content to learners. Here new input was presented to the learners. The content was divided into lecture notes, tutorials and tests. The tutorials and test questions included Multiple Choice Question as well as open ended questions. Information about reading skills was available on the 'lecture' link. They had to explore the link first and then attempt the activities on the website.

The fifth step in Gagne's instructional events is to provide learning guidance. This was done by allowing the students to f explore the topic by viewing the guided tutorial page.

The sixth step in Gagne's instructional event is to elicit performance. Here the students were given a variety of activities to enable them to comprehend the topic better. Examples of the activities are online tutorials, tests and crossword puzzles.

The seventh and eighth steps are to provide feedback and to assess performance. Immediate feedback was given after each activity because the students were able to check the answers after completing a tutorial or test. It also provided an opportunity for greater participation and engaged the entire class in the learning process. Reinforcement of learning took place with more activities assessed for correct performance.

The ninth step in Gagne's instructional events is to enhance attention and transfer knowledge and this was done by asking the students to complete e given exercises which involved applying the new knowledge gained. Therefore, Online Test 2 was designed in such a way that that it allowed the learners to email the attempted answers to the lecturer in order to receive personalized feedback on their performance.

Interaction Design

The interaction design aspect concentrated on navigation, usability and communication. To move from one page to another, the learner needed to click on any button available in the well organized hypertexts. In addition, a student could use a scrolling bar as part of the navigation process so as to move up and down a particular page. Apart from that few images were used in order to avoid disruptions while navigating for information.

There were a number of useful features included in this web-based lesson to make the exploration more enjoyable and informative. Notes were inserted for each topic in order to allow the learners to get relevant information. In addition, related links and an online dictionary and thesaurus were provided to assist students to explore the topic. Another design interaction feature available in the web-based lesson was the mode of communication. In this context email was used as a mode of communication with the lecturer. The lecturer provided individual responses as well as group responses to the learners.

Findings

Below are the findings:

The Educational Technologists

Table 2: Responses from the educational technologists about the structure of the objectives and learning outcomes

Expert	Comment
Maya	• Suitable and easy to understand. • The questions were directed at the learning outcomes and its objectives.
Alex	• It provides an alternative method of learning. • It is well-structured.
Rina	• It is relevant and well-organized.

The three educational technologists mentioned that the instructions were well structured, clear, easily understood and suitable for the targeted learners. One of the experts mentioned that the information in this module provided an alternative way of learning for both teachers and students, making it easy for the learners to understand the lesson.

Table 3: Responses from the educational technologists on navigation

Expert	Comment
Maya	• Navigation is easy and user friendly.
Alex	• Navigation is easy because the links are always available on the top of the page.
Rina	• Navigation is easy because the links are available on the top of the page.

All three of them agreed that they did not have any difficulties with navigation because it was easy and user friendly. Additionally, two respondents mentioned that the links were always available at the top of the page. Therefore, it saved scrolling time.

> *Alex: "I did not have any problems with the navigations. It is easy and user friendly".*

Table 4: Responses from the educational technologists on lecture notes

Expert	Comment
Maya	• Well designed. • Suggested to add uploading feature or tool.
Alex	• Relevant and appropriate for this age group.
Rina	• The layout of the content is appropriate

Table 5: Responses from the educational technologists on tutorials

Expert	Comment
Maya	• Real time feedback is good.
Alex	• Relevant and appropriate for the age group.
Rina	• Suggested to place the text and questions vertically

Table 6: Responses from the educational technologists on tests

Expert	Comment
Maya	• Well structured. • Use of scroll page is good.
Alex	• Relevant and appropriate.
Rina	• Well designed.

Table 7: Responses from the educational technologists on Puzzles

Expert	Comment
Maya	• Fun way of learning new words
Alex	• Interesting way of learning new vocabulary.
Rina	• It is fun. • Suggested to add more language-related games.

As mentioned above (Table 4 – Table 7), all three of them agreed that this web-based lesson was suitable for the targeted learners. In conclusion, the activities were well-structured and relevant.

Table 8: Responses from the educational technologists on the presentation

Expert	Comment
Maya	• Neat screen design. • Suitable background colour. • Font type is clear and easy to read. • No many animaions used.
Alex	• Suitable scrreen design. • White background colour is suitable. • Font type is fine and easy to read. • Animations not necessary.
Rina	• Simple and suitable screen design. • White background colour is appropriate. • Suggested to use Sans Serif fonts. • Suggested to add more animation.

Based on the feedback received from the three respondents the screen design was neat, organized and suitable. The background colour was suitable. The type of font used was appropriate and easily read.

> *Alex: "The screen design is simple but compact. The background colour is suitable. The font size is suitable. Animations are not necessary in this context".*

The Content Experts

Table 9: Responses from the English lecturers on information design

Expert	Comment
Ayu	• Objectives are clear. • Instructions are simple and easy to understand. • Content is relevant. • Exercises are suitable but better if structured according to proficiency level. • Interactive with immediate feedback. • Language is simple and direct.
Joe	• Objectives are clear. • Instructions are simple and easy to understand. • Content is relevant. • Exercises are suitable but better if structured according to proficiency level. • Interactive with immediate feedback. • Language is simple and direct.
Mable	• Objectives and learning are clearly stated. • Instructions are clear and easily understood. • Content is appropriate. • Types of exercises are apt but preferably it could have been organized to cater to different proficiency level. The crossword puzzle is very entertaining. • Language is appropriate

The findings revealed that the content experts found that the objectives of the web based lesson clearly stated and related to the curriculum. The content of the lesson was suitable for the targeted learners. The instructions were simple and direct. The language used was simple and easy. The exercises were engaging and there was immediate feedback. However, the exercises should be structured according to different proficiency level.

> *Mable: "By incorporating interactive language activities such as online tests, tutorials as well as crossword puzzles, students can practice and test their practical skills in a fun and stress free manner".*

The students enjoyed the lesson because the instructions were simple and direct. The activities were suitable but it would have been better if they was structured according to different proficiency levels.

The Students

Six foundation students were involved in the summative evaluation. The findings were divided into three different sections. The first section was information design, which included the objectives and learning outcomes, content and learning materials, language and exercise or activities. The second section focused on interaction design, which included interaction features like the links for lecture notes, tutorials, tests and puzzles and the third and the final section involved the presentation design which focused on screen design, background color, font, graphics as well as animation.

Information Design

Table 10: Responses from the students on the objectives and learning outcomes

Student	**Comment**
Nabila	• Objectives and the learning outcomes are clear and easy to understand.
John	• Objectives and learning outcomes are suitable and direct.
Lim	• Objectives and learning outcomes are clear and it helps me to focus on the specific topics.
Rahul	• Objectives and learning outcomes are well organized.
Piya	• Objectives and learning outcomes are suitable and it is helpful to further explore the lesson.
Rachel	• It's clearly stated and appropriate.

Based on the information obtained from the students (Table 10), the objectives were clearly written, easily understood and suitable for foundation students. All six respondents agreed that the objectives and learning outcomes were clearly stated.

Lim: "The objectives are clearly stated and it enabled me to stay focus on specific topics."

Table 11: Responses from the students on the content and learning materials

Student	**Comment**
Ayu	• Clear and easy to understand • Simple language used and the instructions are easy to follow
John	• Factual and easy to understand • Simple instructions to follow
Lim	• Content is engaging and Interactive. • Interactive with immediate feedback.
Rachel	• Content is clear and structured.
Piyu	• Content is simple and easy to follow • Instructions are direct.
Rachel	• Content is simple and easy to follow

As revealed in Table 11, the students agreed that the content was straightforward and easily understood. Further, the students also mentioned that the instructions given were simple and easily understood because the language used in the lesson was simple and direct.

Piya: The content is simple and easy to follow. Apart from that the instructions are direct".

Interaction Design

Table 12: Responses from the students on navigation

Student	**Comment**
Nabila	• Easy because I'm familiar with the links available
John	• Easy to use
Lim	• Easy to use. Links are available at the bottom of the screen.
Rahul	• Easy to use
Piya	• The navigation buttons are user friendly
Rachel	• Easy to use.

Based on the feedback received from the students Ttable 12) they did not have any difficulty with the navigation. On the whole navigations was easy and user friendly. In addition to that, one of the students mentioned that the related links were available at the bottom of the page.

Table 13: Responses from the students on Lecture Notes

Student	**Comment**
Nabila	• Introduced the information in an orderly manner.
John	• Able to identify with terms or concepts introduced
Lim	• Informative especially the additional related links.
Rahul	• Engaging and information is chunked accordingly
Piya	• Interesting and easily understood
Rachel	• Relevant and helpful.

Feedback obtained from the students (Table 13) was very encouraging because all the students agreed that it was a very interactive and engaging way to learn reading skills. Further, one of the students mentioned that he was able to identify with the terms or concepts introduced. On the whole, the students enjoyed learning using this form of media.

Rahul: "It is engaging and the information is chunked accordingly".

Table 14: Responses from the students on Online Tutorials

Student	**Comment**
Nabila	• Well structured and allow us to practice on our own.
John	• Exercises are relevant and helpful.
Lim	• Immediate feedback for answers
Rahul	• Helpful, suitable and simple.
Piya	• Suitable and able to relate to the topics
Rachel	• Helpful especially the guided tutorials.

Based on the feedback obtained from the students (Table 14), all of them agreed that the lesson was suitable. One of the student mentioned that it was helpful because one of the tutorial exercise was guided.

Nabila: "The information given is simple and well structured. There are also numerous exercises to try out".

Table 15: Responses of the students on the Online Test

Student	**Comment**
Nabila	• Relevant and allows me to try them at my own free time.
John	• Helpful and good practice for students especially from home.
Lim	• Appropriate because it prepares students for the final examination.
Rahul	• Numerous exercises to practice
Piya	• Helpful and relevant
Rachel	• Interesting way of answering questions

The findings above (Table 15) revealed that the Online Tests were suitable and helpful because the test allowed the students to practice at their own pace.

Table 16: Responses from the students on Crossword Puzzles

Student	**Comment**
Nabila	• Fun and interesting.
John	• Enjoyable and suitable.
Lim	• Fun yet challenging.
Rahul	• Fun and educational.
Piya	• Help me improve my vocabulary in a enjoyable manner.
Rachel	• Very interesting

It was found that Crossword Puzzles (Table 16) were very exciting and engaging. All the students mentioned that the crossword puzzles were fun and entertaining. They supported independent learning because they helped students to explore and build on new vocabulay at their own pace.

Lim: "The crossword puzzles are fun yet challenging at the same time."

Presentation Design

Table 17: Responses of the students on Screen layout and background colour

Student	Comment
Nabila	• Suitable background colour
John	• Simple screen layout • preferred a colored background
Lim	• Screen layout is attractive • Use a brighter shade colour for the background.
Rahul	• Screen layout is appealing • Use a lighter shade color for the background
Piya	• Suitable screen layout • preferred a colored background
Rachel	• Screen layout is simple and nice • Background colour is appropriate

Based on the feedback obtained from the students as shown in Table 17, all the students found the screen design sitable. It was appealing to them. Apart from that, most of the students suggested the use of a colored background. They felt that it might make the lesson more attractive and appealing.

Rahul: "The screen layout is appealing but a brighter coloured background may be more attractive".

Table 18: Responses from the students on font, graphics and animations

Student	Comment
Nabila	• Font type is clear and easily read • Limited use of animation
John	• Font type and size are suitable and easily read • Animations are not necessary.
Lim	• Font type, size and color were suitable. • Animation can be used as tabs for navigation purposes.
Rahul	• Font type, size and use brighter colours for the background. • Limited animations were used.
Piya	• Font type, size and color were appealing and easily read. • Increase the number of animations on the website.
Rachel	• Font type, size and color are appropriate • Animations and graphics in the website are appropriately chosen.

According to the student's response (Table 18), the font type and size were clear, suitable and easily read. Some students commented on the limited number of images or animations. Based on their observations all the students were eager, curious and focused during the teaching and learning process.

> *Nabila: "Font type and size are clear and easily read, but limited number of images and animation or mind maps are used to deliver the information".*

Generally, the feedback obtained from the educational technologist, lecturers and students regarding the lesson were affirmative.

Discussion

The aim of this study was to get the educational technologists', lecturers' and students' views and evaluation of the web-based lesson which was designed by researchers. This was done to ascertain the appropriateness and suitability of the lesson as well as to to gather data on its shortcomings. The feedback received from the educational technologists, lecturers and students were given due consideration to enable the web based lesson to be carried out as an instructional tool in an English language classroom.

Formative and summative evaluations were conducted. The formative evaluation involved the educational technologists and English lecturers because their opinions were relevant in order to determine the appropriateness of the learning material for the targeted learners. According to Dick and Carey, (1990) formative evaluation is a process of gathering data and help upgrade the instruction in order to produce more effective learning materials.

The summative evaluation involved the students, the targeted learners. This was done in order to evaluate the learning material because their feedback is needed to further improve the lesson. This is in keping with Bhola (1990) who says that summative evaluation should be conducted to ensure that the intended learners have achieved the minimum standards of knowledge, skills and attitudes.

Information Design

Feedback from the respondents reveal that the objectives of the lesson were clearly stated. The clearly written objectives enabled the targeted learners to recognize the scope of this lesson and also helped them to stay focused in order to achieve the objectives. Reading skills was the focus of this research. All the respondents agreed that the content was well structured and fulfilled the curriculum needs. They also added that the instructions were direct and easily understood.

The lecturers said that the exercises in the web-based lesson allowed for immediate feedback and independent learning which shifted the teaching and learning process from teacher centeredness towards student centeredness. This is consistent with Owston (1997) who says that online lessons allow for student centeredness as opposed to teacher centeredness because they allow the learners to learn at their own pace and immediate feedback is obtained from the exercises given. The exercises encouraged exploration as well as promoted inquiry-oriented learning.

Furthermore the educational technologists and lecturers agreed that the content was well organized and chunked appropriately. This is consistent with Shaumbaugh and Magliaro's (1997) requirement that the information provided to the learners should begin with simple concepts and move towards more complex ones. This flow of information facilitates learning and reduces. The respondents mentioned that the language used was simple and direct. On the whole, all the respondents agreed that the exercises were interesting and challenging. As a result, this engaging learning activity enabled the learners to explore the lesson content better. This is consistent with Olcott et al. (1999) who claim that that engaging online material helps students comprehend lesson better as they cater to different learning styles.

Interaction Design

All the respondents agreed that they did not have any problems with navigation. The respondent navigation was easy and this encouraged them to further explore the lesson. All the respondents agreed that the features included in this online lesson were relevant and interesting. This is consistent with Shaumbaugh and Magliaro (1997) who say that a module should be comprehensible to the learners, helpful in learning and the teachers as well as the students should be able to draw relationships between the concepts and content delivered.

Presentation Design

Most of the respondents said that the screen layout was simple and appealing. There were differences in opinion with regard to the background colour of the module between the instructional technologists. The instructional technologists thought that white was a background colour for the module but the students suggested a coloured background would be better. All the respondents approved of the font size used. All agreed that layout was clear and easy to read even though a few of the respondents suggested inserting more animation. This was suggested as a means of diversifying the delivery of information as well as to capture viewer's attention.

Conclusion and Implications

This study focused on the criteria involved in the design and evaluation process of a web-based lesson. It addressed three elements of the design process, information

design, interaction design and presentation design which were identified by Kristof and Satron, (1995). The overall responses received from all the respondents were very positive. The educational technologists and lecturers found this online lesson attractive, benefiting and engaging.

The web-based lesson was well organized and chunked appropriately with achievable objectives. It had interesting and challenging activities, which helped to promote higher order thinking. All the respondents were made affirmative comments about the lesson. Thus,in conclusionit can be said that the web based lesson was found to be suitable for classroom use.
Yusof (2000) states that information technology is part and parcel of today's society. As information and communication has become an integral part of our daily lives, it is essential that educators and students of this millennium learn to manage and use information effectively.

Apart from this, educators should deliver their lessons using various types of media, such as web based lessons, and not solely rely on print based or CD based lessons. Educators should be more pro–active in using the new technologies available in order to create more interactive and engaging lessons.

Limitations of the Study

Since the study was limited to a selected group of students, their responses may not be generalizable. The web-based lesson designed by the researchers may only be suitable for use of computer-literate students with in institutions that have proper computer infrastructure.

Suggestions for Further Research

In this study, a web-based lesson was designed and evaluated for use as an instructional tool in an English Language classroom. A possible area for future research could be a case study to see if students' performances in English language improves after exposure to lessons based on electronic media in their classrooms. Another area of study is to find out whether web-based instruction can be effectively implemented with other subjects such as Mathematics or Science.

References

Barba,, R. H. (1998). DIT 186, *Using Instructional Media.* Retrieved August 11, 2005 from http://www.2.sjsu.edu/depts/it/edit186/mod13.htm

Bhola, H. S. (1990). Evaluating "Literacy for development" projects, programs and Campaigns: Evaluation planning, design and implementation, and utilization

of evaluation result. Hamburg, Germany: UNESCO Institute for Education, DSE, German Foundation for International Development. Retrieved April 5, 2006 from http://www.sil.org/lingualinks/literacy/ReferenceMaterials/GlossaryOfLiteracyTerm/WhatIsEvaluaton.htm

Bostock, S. (1996). Courseware Engineering: An overview of the Courseware development process. Retrieved May 28, 2005 from http://www.keele.ac.uk/depts/cs/Stephen_Bostock/docs/atceng.html

Dick, W., & Carey, L. (1990). *The systematic design of instruction* (3rd Ed.). USA: Harper Collins Publishers

Gagne, R.M. (1985). *The conditions of learning* (4th Ed.). New York: Rinehart & Winston.

Jonassen, D, (1996). *Computer in the classroom: Mindtools for critical thinking*. Englewood Cliffs, N. J.: Prentice-Hall, Inc.

Kristof, R., & Satran, A. (1995). *Interactivity by Design*. Mountain View, CA: Adobe Press.

Olcott, D. J.(1999). Instructional Technologies Part 2. Strategies for Instructor Success:Selecting and Using Distance Education Technology. In M, Boaz, B. Elliot, D. Foshee, D. Hardy, C. Jarmon (Eds). *Teaching at a distance: A handbook for instructors.* Retrieved April 4, 2006 from http://eric.ed.gov/ERICDocs/data/ericdocs2/content_storage_01/0000000b/ 80/11/99/0e.pdf.

Owston, R.D. (1997). The World Wide Web: A Technology to Enhance Learning. Retrieved March 30, 2006 from http://www.edu.yorku.cal~owston/article.html.

Ritchie, D.C., & Hoffman, B. (1997). Using ID Principles to Amplify Learning on the WWW. (ED 415835). Retrieved January 10, 2010 from http://www.eric.ed.gov/ERICWebP/Home.portal?_nfpb=true&ERICExtSearch_SearchValue_0=Ritchie%2C+D.C.+%26+Hoffman+%2CB.+%281997%29&ERICExtSearch_SearchType_0=au&_pageLabel=ERICSearchResult.

Shaumbaugh, R. N., & Magliaro, S. G. (1997). *Mastering the Possibilities: A Process Approach to Instructional Design*. Boston: Allyn and Bacon.

Yusof, S. (2002). Information technology training gets a boost. Retrieved May 5, 2005 from http://www.web4.infotrac.galegroup.com/itw/in