

ExperienceLab

Design guidelines | Interactive courseware

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RESTRICTED COMMERCIAL

Introduction

Educators are looking for the best ways with to use computer technology to help students learn. In June 2003, Serco ExperienceLab conducted an independent research project looking at one such project, an intermediate Czech course produced on CD-ROM.

This paper outlines some findings and high-level guidelines that may be useful to others creating courseware.

Summary

Students see great value in interactive media, and believe that properly designed material will increase the amount of time they study, help them better prepare for exams, and improve their motivation. However, they see such interactive tools as only one part of their learning experience, supplementing normal textbooks and classroom work.

Their expectations for the interactive tools seem to be set by their experience of the web. Not only do they bring with them a desire for standard web navigation and orientation, but also the short attention span and need for immediate feedback that shapes the design of commercial websites.

Guidelines for general courseware

Relationship to textbook and course

Students are not yet ready to give up printed textbooks or classroom time.

The students see the printed textbook as the authoritative, complete source for the course. For those students who do not have their own computers, it is essential to have such a reference for times when it is difficult to come in to the university. They are more willing to read long descriptions and explanations on the printed page than on screen.

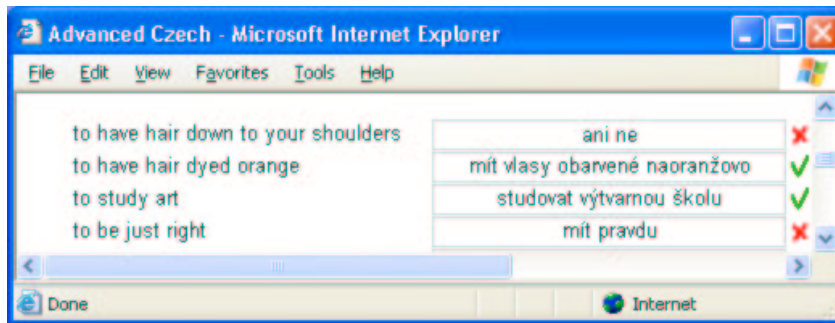
Students did not feel they could learn a language from the interactive course on its own.

Ensure 'click-through' mechanisms are visible and predictable

Immediate feedback

Students appreciated exercises that offered immediate feedback telling them whether an answer was right or wrong.

The prototype that we tested offered a variety of exercise types, some marking correct answers with check marks and incorrect ones with Xs, some explaining why answers were wrong, and others providing free form fields that the students marked themselves.



Checks and Xs were the most popular feedback mechanism

The checks and Xs were by far the most popular. The self-marked answers were dismissed as not useful, and the students said they would be inclined not to complete them. Students paid no attention to longer explanations of incorrect answers.

This desire for immediate feedback is consistent with findings from commercial websites.

Form of exercises

Students had firm and consistent attitudes toward the form of the exercises, judging them mainly on whether they were too simple or complex. They disliked questions that allowed for easy guesswork, especially true-or-false type exercises and multiple choices that had only two or three choices.

They also disliked exercises with large fields for text input that could not be checked by the computer to see if they were correct.

The favourite exercises were those that could not be easily guessed, but were limited enough to allow them to be checked.

- Multiple choice pull-down menus with 4-7 choices.
- Single word fill-in-the-gaps that could be checked, and similar single-word drill exercises to check conjugations and declensions.
- Drag-and-drop fill-in-the-gaps where the number of possible answers exceeded the number of questions, making the answers difficult.

Number of exercises

The students had limited patience for going through the course material. For any particular point of grammar or small-scale lesson, the ideal number of questions per exercise was between four and ten.

Navigation and orientation

The students wanted the same features for navigation and orientation as they would want from commercial websites, and succeeded best when these elements were present. Some of these standard elements include:

- A persistent, consistent navigation mechanism, with the high-level choices in either a vertical or horizontal navigation bar. All key items should be visible on the bar, not hidden in a drop-down menu.
- A crumb-trail to show where in the navigation hierarchy the student is. Such a crumb trail could appear like this: Czech Home > Unit 1 > Grammar > Point 5 > Exercise comparing cars Successful crumb trails begin with the home page and end with the name of the page the user is looking at. Every page referred to has a hyperlink, except the current page, which is the last one in the list.
- While students should be allowed to travel through the material in any order they like, a sensible default order should be clear.
- Students expect every page to tell them what they “should” do next, and every page should end with a link to the next suggested page.

Guidelines for language courseware

Mixing native and target languages

While texts and dialogues are of course in the target language (that is, the language that is being taught, in this case Czech), the authors can choose whether to put grammar discussions and software instructions in the student’s native language (i.e. English in this case) or in the target language.

This group of intermediate language students preferred that grammar explanations be in their native language, but simple exercise and software instructions in the target language.

The students were divided as to how to handle vocabulary lists. Some preferred the list words to be translated into their native language; some preferred them to be defined in the target language.

Audio dialogues

The students showed keen appreciation for the ability to hear dialogues on the computer. It was perceived as better than cassette or CD recordings because of the ability to easily replay portions of the dialogue, and more importantly because it allowed them to see the text and hear the dialogue at the same time.

The designers of the course wanted students to listen to the dialogue at least once before seeing it in print, and so they set the dialogue text to be hidden by default. This defaulting worked well.

If possible, it is desirable to link the text to the audio so that students can click a line of dialogue and hear that specific line read out.

Vocabulary support – learning new words

Students have the same attitude about learning new words online as they do about other exercises – they want quick feedback. Ideally, they would like a flashcard style system. Failing that, they would like to print a two-column list so they can fold it in half and quiz themselves.

Vocabulary support – looking up words

The prototype that we tested offered a fairly comprehensive vocabulary list which required the students to open the list, click the initial letter of the Czech word they were looking for, and then scroll to the word.

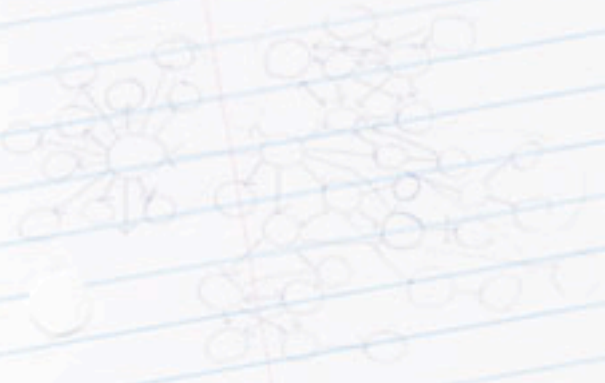
Users appreciated the facility, but not the mechanism. For dialogues, they wanted to click an unknown word and have the translation or Czech definition appear in a small pop-up window. For other words, they wanted a “vocabulary search” box on each page where they could type a word and have a translation or definition appear, again in a small pop-up window.

About ExperienceLab

ExperienceLab (formerly Serco Usability Services), are a global experience design research agency. They help organisations optimise their customer experiences, from web to TV and mobile, from advertising to physical environments. They’ve been doing this for a while, pretty much since the first computers and networks were created, so they know a thing or two about how to make people, processes and technologies work in harmony.

ExperienceLab use a wide range of techniques to tailor a research solution that fits your business objective, including ideation sessions, proposition analysis, customer needs mapping, usability testing, benchmarking and touch point integration studies. As a co-founder of the UXalliance we also provide research on a global scale.

Why not visit the ExperienceLab blog (www.experiencelab.info), which features the latest thinking on experience design issues.



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