Improving Public Information with an Interactive Lecture Approach

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ABSTRACT

Providing public information is one of the main activities of The Nuclear Training Centre (ICJT) at the Jožef Stefan Institute. Our primary target is students of primary and secondary schools. The lecture they listen to during their visit to our centre was old fashioned since we used classic overhead projector. We have modernized it with an LCD projector and computer-based interactive presentation in order to improve students' comprehension.

1 INTRODUCTION

Schools visit our centre as part of their science days. In the last decade we had over 1,300 visits with over 65,000 visitors. The visits last about 2 hours. In the first part of the visit students listen to a lecture. There are two lectures visitors can choose from: Electricity from Nuclear Energy and Radioactivity and Radioactive Waste. The lectures are mostly appropriate for school groups from the seventh grade up. However, other visitors are also welcome. Both lectures are on a very basic level. Very little previous knowledge is necessary. Our lecturers adjust the level according to the knowledge and interest of the public. The 45 minute lecture is usually followed by a discussion.

After the lecture there is a guided tour around the nuclear technology exhibition, where the emphasis is given to nuclear power plant technology and radioactive waste management. The exhibition consists mainly of panels with detailed descriptions of different topics related to nuclear technology, in Slovenian and English. Visitors can find anything from operation of a power plant to environmental issues related to energy management and influences that it has on the environment, such as the Greenhouse Effect and Global Warming.

Smaller groups can also visit the TRIGA Research Reactor and radioactive waste storage site by prior arrangement.

2 THE OLD LECTURE

We used a classic overhead projector with transparencies from our beginning in the early 1990s. The classic way did the job fine, but it was not appealing anymore to today's youngsters, who are used to attractive computer graphics and video clips on TV. We updated the transparencies every year or so, improved the graphics, brightened the colours etc. But we were always limited to a static presentation, a small picture and a lecturer stuck with an overhead projector. Besides that, it was always annoying to change a detail or two in a
transparency because of the printing procedures. So we decided to modernize the lectures, with special attention given to education technology.

3 THE NEW LECTURE

3.1 The approach

We wanted:
- interactivity to be able to tailor the presentation according to the audience and its feedback
- the biggest picture possible
- an attractive show

3.2 Interactivity

In order to achieve interactivity we had to set up our presentation on a computer with a screen projecting device (LCD projector) and very importantly with a remote controllable mouse, so that the lecturer can move freely around the lecture room and control the presentation at the same time.

As for the presentation program, we chose widely used Microsoft Power Point program, because we are familiar with it and because it offers enough interactivity. Power Point allows links between slides like, browsing the WWW. Hyperlinks can be inserted into text, drawing objects, pictures, etc. Thumbnails familiar from browsing the WWW can also be simulated. Power Point also offers action buttons with predefined functions like “go to last slide viewed” etc, but as we have found out they are missing the real function of “back” button from the web browser. So, in order to provide safe jumping from slide to slide we had to link the slides together manually without using action buttons.

The interactivity of our presentation is provided through a menu-type banner, which is added at the bottom of each slide. The banner is in black so that it does not disturb the attention of the audience since the presentation is carried out in darkness. The menus in the banner were designed to be hardly visible, with the same purpose in mind. The lecturer can see the banner well since he is much closer to the screen than the majority of the audience.

The banner has two parts – the main menu on the left side which is constant, and the submenu on the right side which changes from slide to slide according to additional slides available. The main menu allows lecturer to skip slides, jump to another chapter, get the index of all slides, go to the first slide, etc. In the main menu there are also two arrows, one pointing to the next slide and another pointing to the previous slide of the basic set of slides. If a lecturer “gets lost” in additional slides he can always get to the next or previous slide from the basic set by clicking on the appropriate arrow.

3.3 The big picture

We chose a wide screen picture format of 16:9 (motion picture format) to get the biggest picture possible, because the size of the picture was only limited in the vertical direction by the height of the first row of the audience.

There were significant technical changes needed in our lecture room in order to facilitate wide screen projection. The LCD projector was mounted on the ceiling approx. 6 meters away from the screen with inverted projection. A special console was ordered for that purpose and a large manual driven screen was ordered and mounted as well.
The computer running the presentation was set up near the screen, in the lecturer’s area. Thus SVGA Multiplier was needed to overcome the large distance between the computer and the projector. It turned out that the remote control of the LCD projector could be used as a computer mouse as well. So, luckily we ended up with only one remote control for both machines.

3.4 Attractive show

For the majority of our visitors, i.e. schoolchildren, attractive means something different, something they don’t see and experience everyday at school. So, a big cinema type screen and a lecturer moving around and controlling the slide show from a distance both contribute to the attractiveness of the show very much. But of course not least is the content and the way it is represented in the slides.

In order to create an attractive show we used vivid colours for new and updated drawings and schemes. We used a lot of pictures and we also included some modest animation that can be simply done in MS Power Point (e.g. showing chain reaction). We used more pictures than words, since the main audience would be schoolchildren. If there is a need for higher level presentation, the lecturer can always achieve this by commentary at a higher level.

Figure 1: Presentation slide in wide screen format (16:9) with interactive banner added at the bottom
4 CONCLUSION

So far we have managed to modernize only the first lecture of the two that we offer. Because we wanted to limit the lecture to the schools’ 45 minutes school schedule we ended up with a basic set of 18 slides. An additional 50 slides can be accessed via hyperlinks in the interactive banner at the bottom of each slide. In this way the lecture can be tailored to the audience, especially when answering questions.

We have been using the new presentation for a year, and we have received positive feedback. Our regular visitors noticed and commended the change. The presentation is more interesting and attractive for students. They pay more attention because the picture is bigger, they can see better and their comprehension of the subject is thus better. In the last year we had the biggest number of visitors ever. The new lecture contributed to this record for sure.

Figure 2: Index slide of the lecture Electricity from Nuclear Energy showing the basic set of 18 slides plus additional slides. All the titles link to the appropriate slide – you get to the desired slide by clicking on its title