Content development for successful e-learning environment

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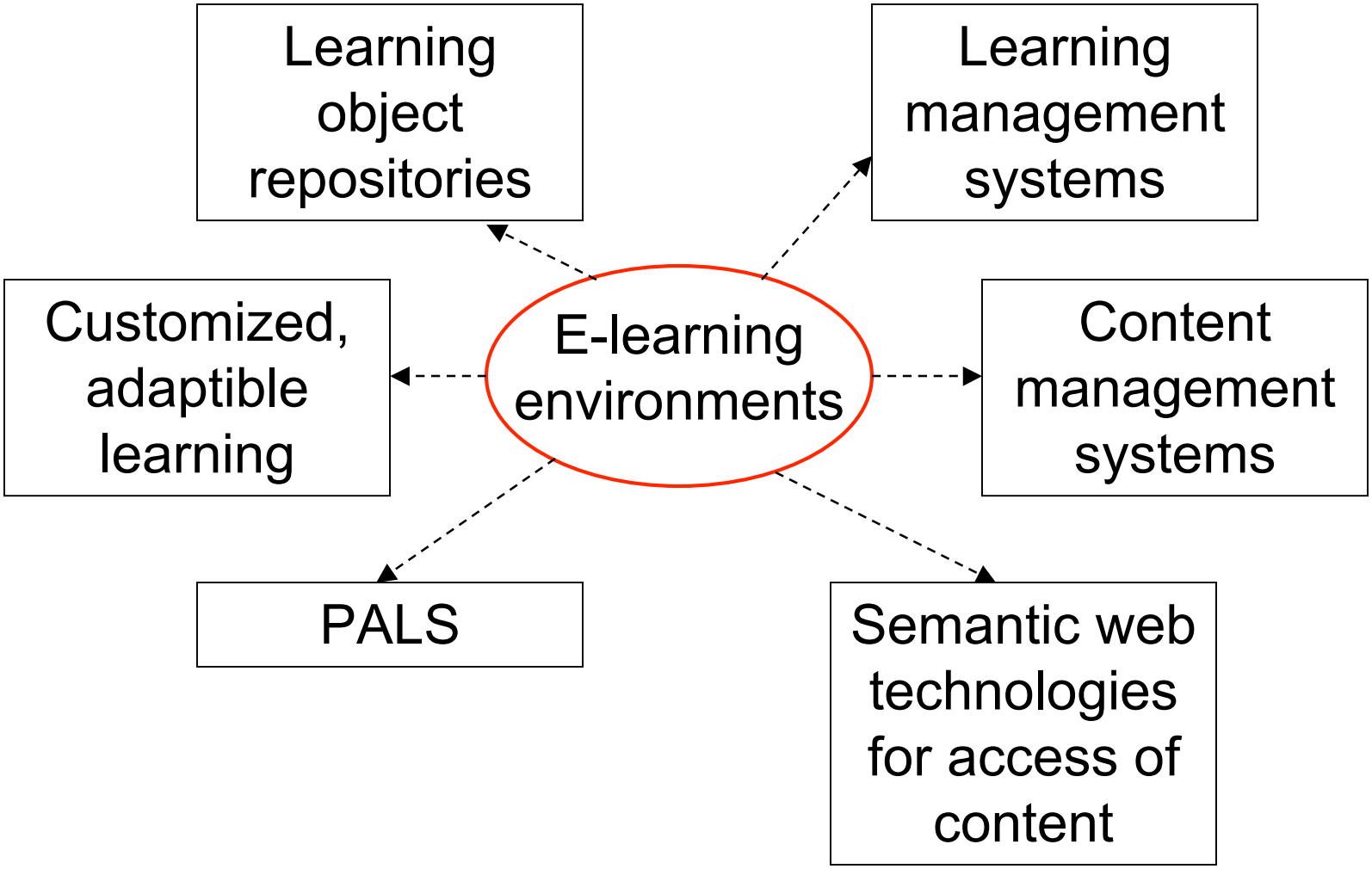
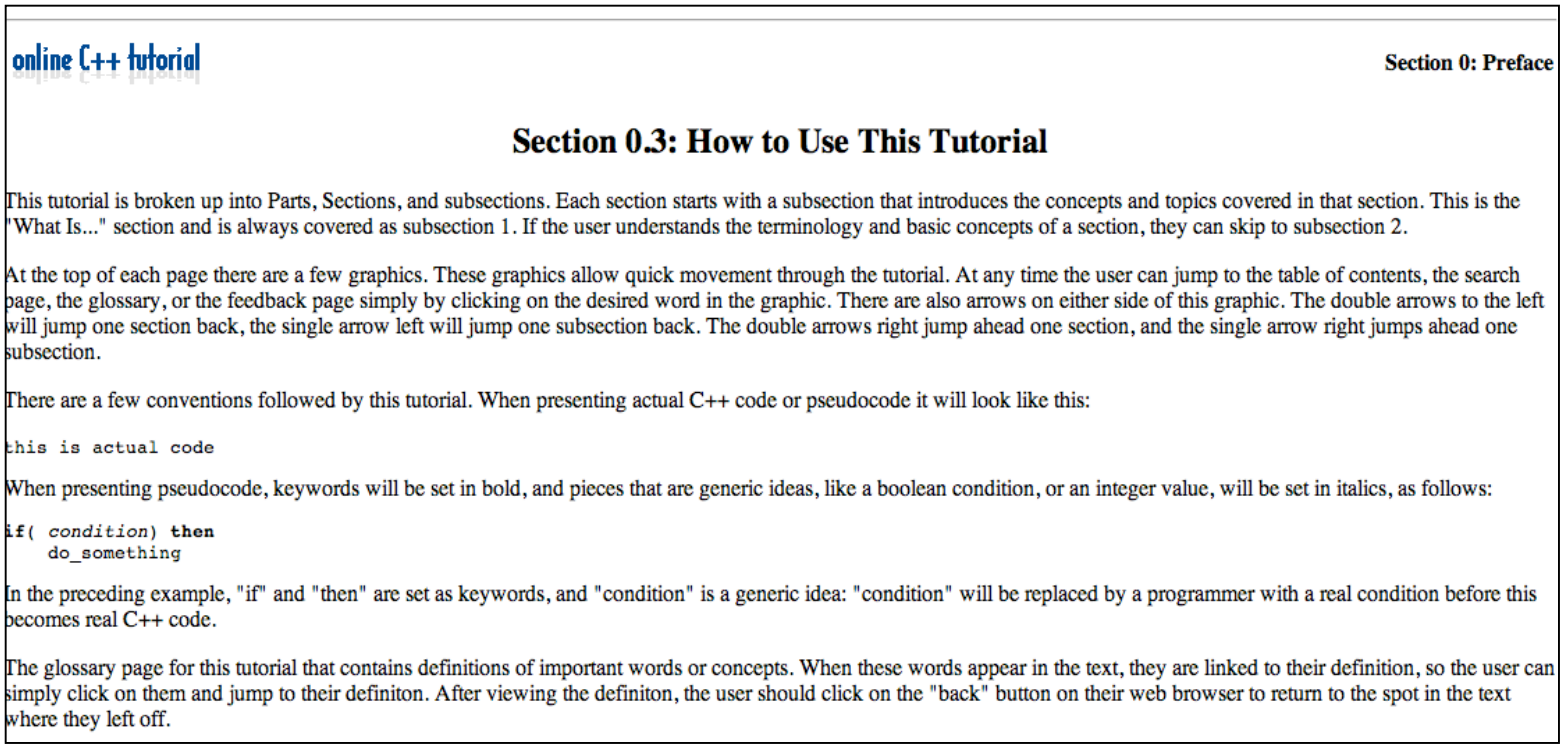
ELELTECH INDIA 2009

Aspects of e-learning environments



e-learning content is not meaningful when …



online C++ tutorial

Section 0: Preface

Section 0.3: How to Use This Tutorial

This tutorial is broken up into Parts, Sections, and subsections. Each section starts with a subsection that introduces the concepts and topics covered in that section. This is the "What Is..." section and is always covered as subsection 1. If the user understands the terminology and basic concepts of a section, they can skip to subsection 2.

At the top of each page there are a few graphics. These graphics allow quick movement through the tutorial. At any time the user can jump to the table of contents, the search page, the glossary, or the feedback page simply by clicking on the desired word in the graphic. There are also arrows on either side of this graphic. The double arrows to the left will jump one section back, the single arrow left will jump one subsection back. The double arrows right jump ahead one section, and the single arrow right jumps ahead one subsection.

There are a few conventions followed by this tutorial. When presenting actual C++ code or pseudocode it will look like this:

```
this is actual code
```

When presenting pseudocode, keywords will be set in bold, and pieces that are generic ideas, like a boolean condition, or an integer value, will be set in italics, as follows:

```
if( condition) then
    do_something
```

In the preceding example, "if" and "then" are set as keywords, and "condition" is a generic idea: "condition" will be replaced by a programmer with a real condition before this becomes real C++ code.

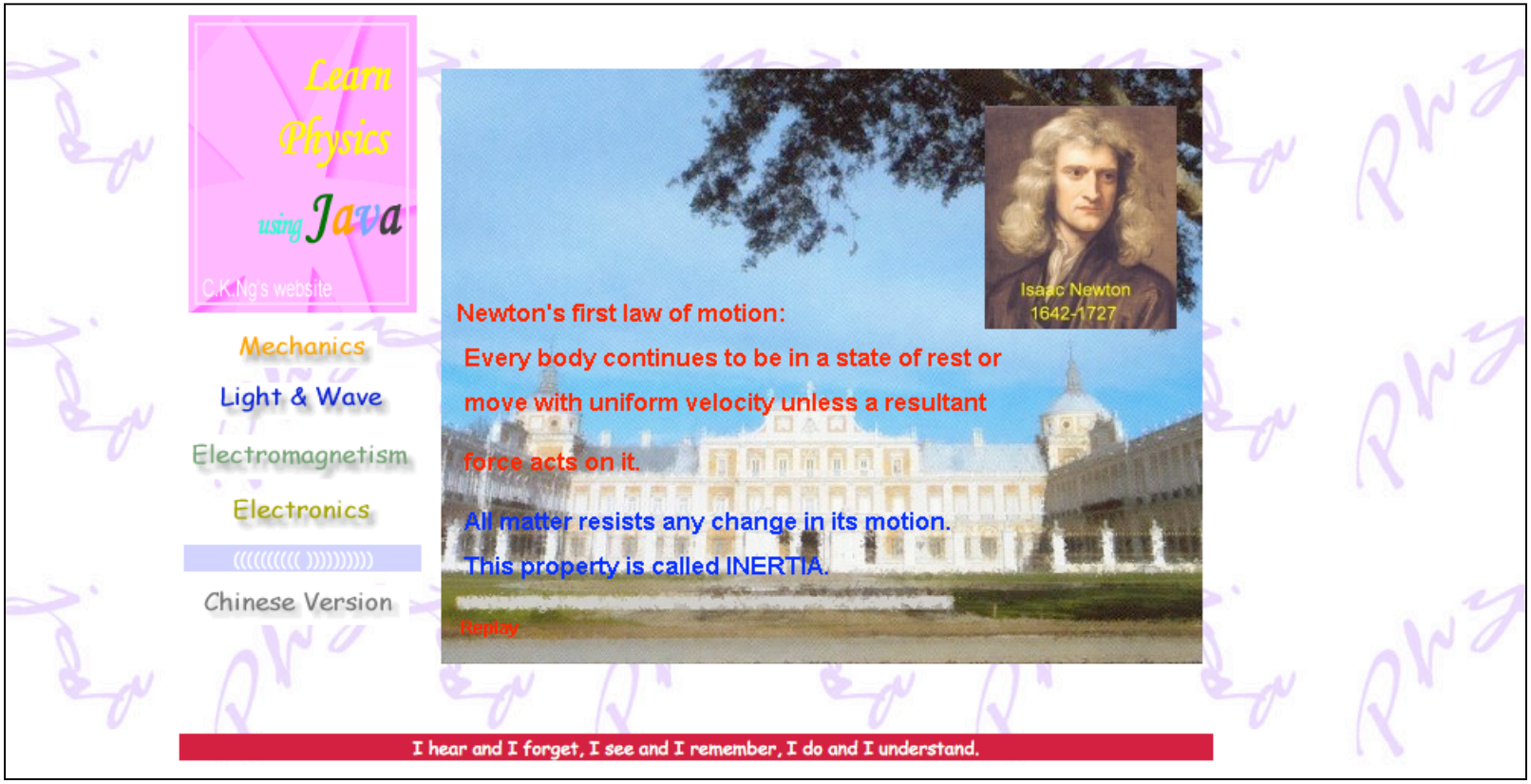
The glossary page for this tutorial that contains definitions of important words or concepts. When these words appear in the text, they are linked to their definition, so the user can simply click on them and jump to their definiton. After viewing the definiton, the user should click on the "back" button on their web browser to return to the spot in the text where they left off.

Long pages filled only with text.

User/student treated as passive reader.

Under-designed.

e-learning content is not meaningful when …



Too many focal points, frills.

Content distracts from learning.

Over-designed.

e-learning content is successful when it is based on:

- Sound pedagogy
- Good design principles
- Strong dissemination efforts

Department of
Computer Science
and Engineering

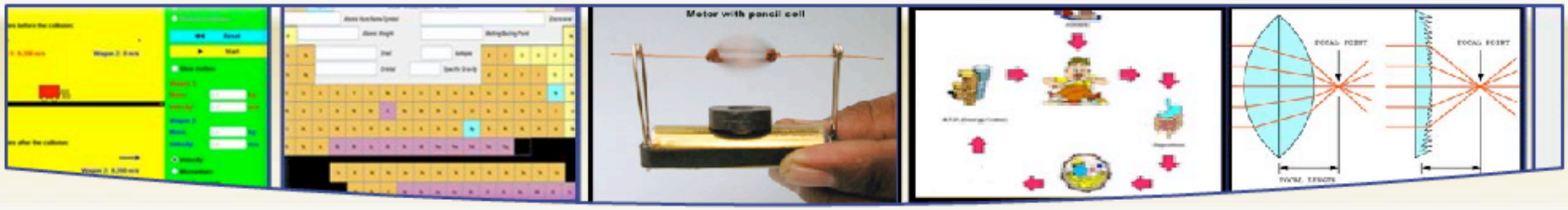
Project OSCAR

Open Source Courseware Animations Repository

IIT BOMBAY

- ABOUT PROJECT OSCAR
- ANIMATION REPOSITORY
- DEVOLOPMENT TOOL KIT
- PLUG IN
- README (USAGE/ INSTALLATIONS)

TOP ANIMATIONS



CONTACT US

2006-2008 2004-2006

http://oscar.iitb.ac.in

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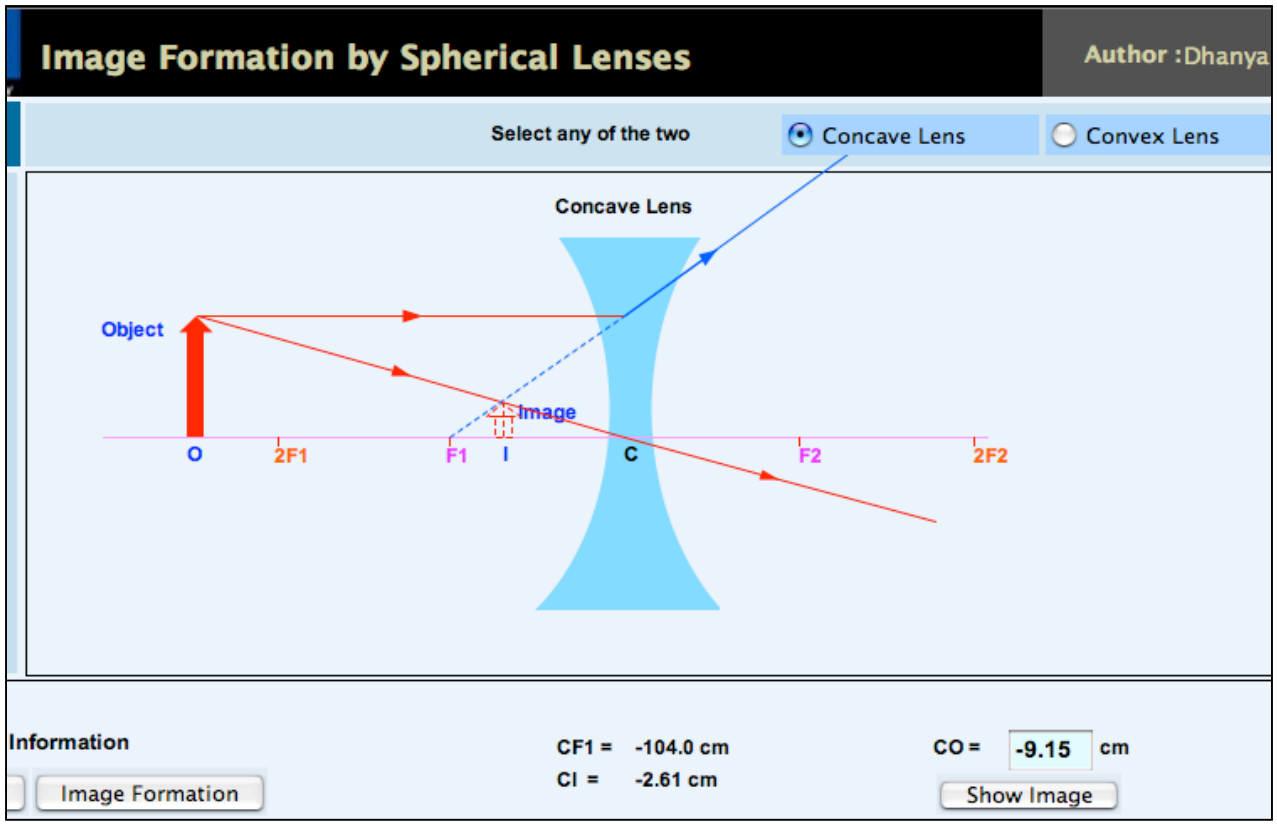
Pedagogical principles

Constructivism



Students interact with the simulation and devise patterns in images formed by spherical lenses.

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Pedagogical principles

Constructivism

Individuals build their knowledge by creating a response to the information they receive and making connections to existing knowledge.

This knowledge is used to create a response to the information they receive from the environment.

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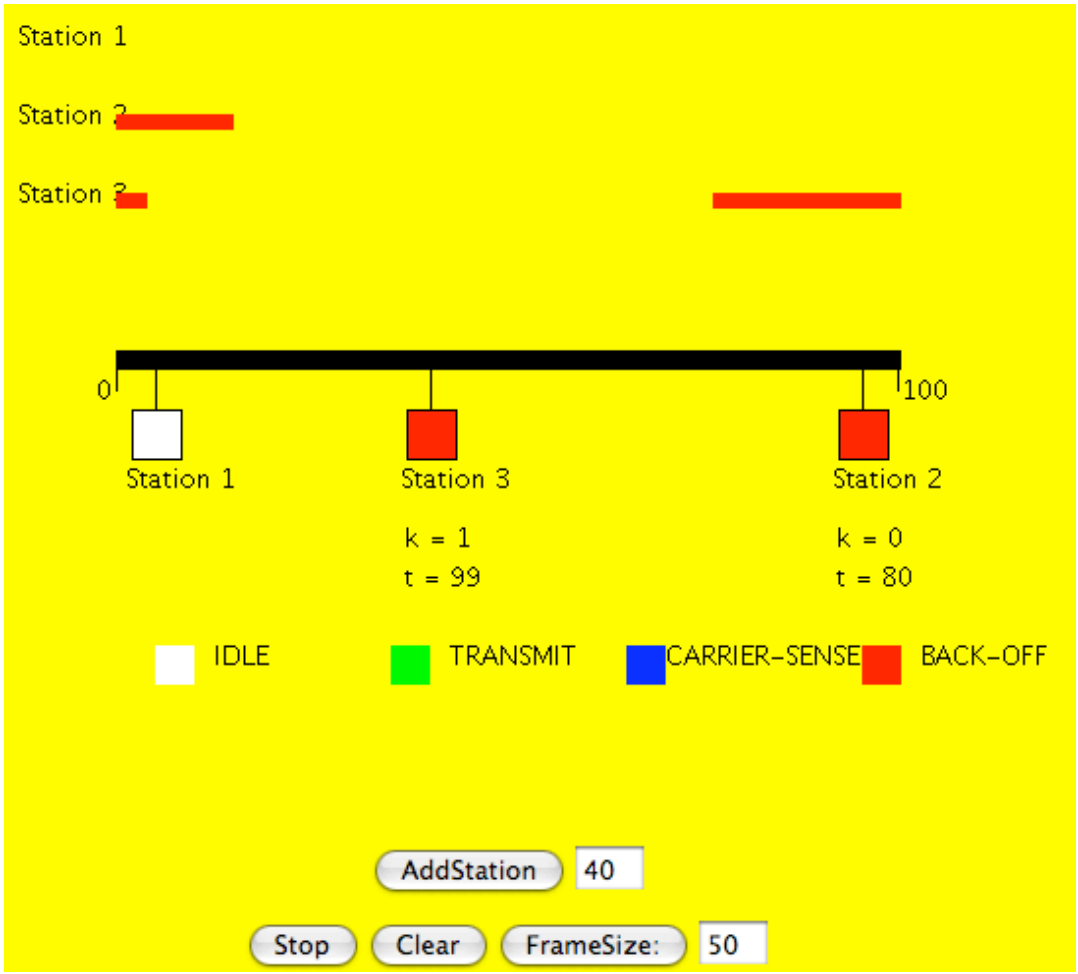
Pedagogical principles

Interactive engagement



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Pedagogical principles

Interactive engagement

Instructional methods “designed to promote conceptual understanding through heads-on (always) and hands-on (usually) activities.” (Hake, 1998)

Hake, R. R. (1998). Interactive-engagement vs. traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. American Journal of Physics, 66, 64-74.

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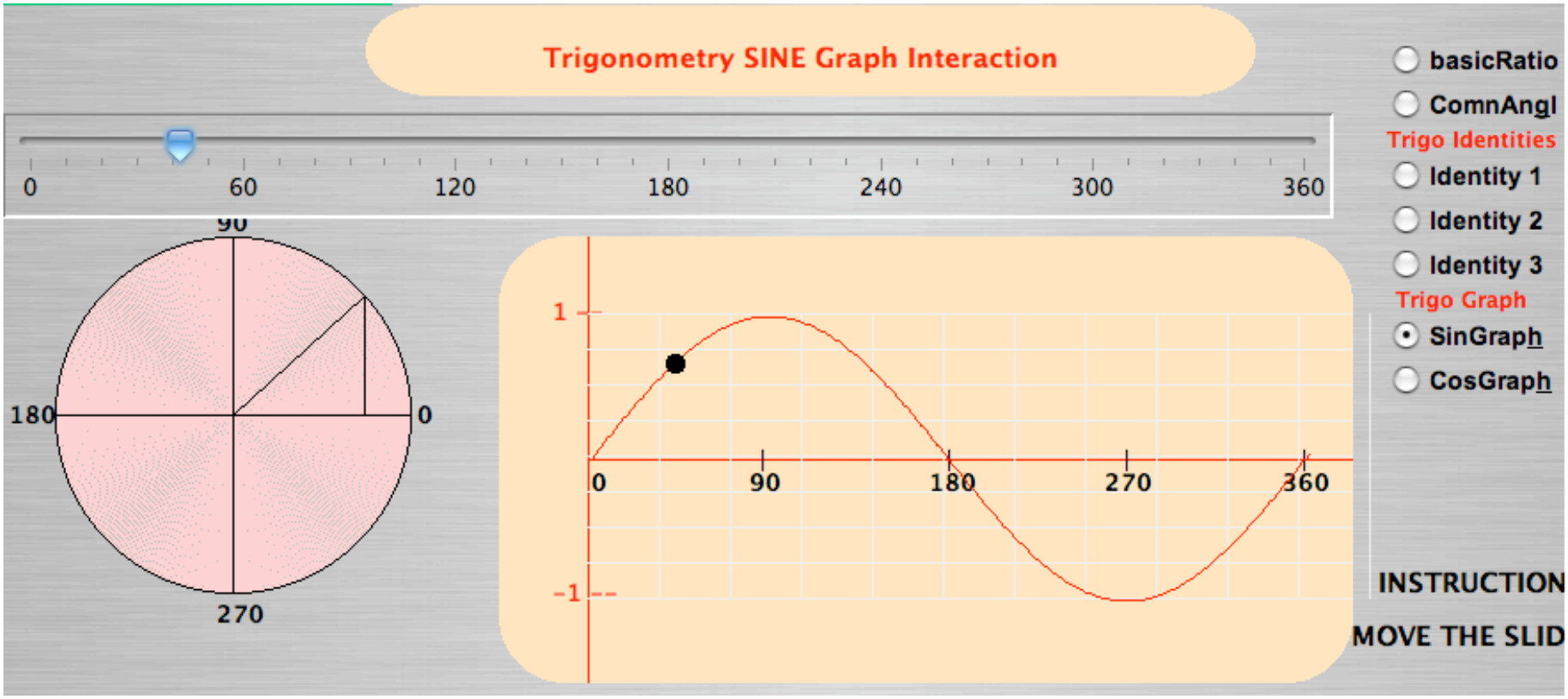
Pedagogical principles

Multiple representations



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Pedagogical principles

Multiple representations

Depicting physical processes using visualizations, representing scientific information with diagrams, equations, text; visual and spatial thinking.

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Pedagogical principles

- Constructivism
- Interactive engagement
- Multiple representation

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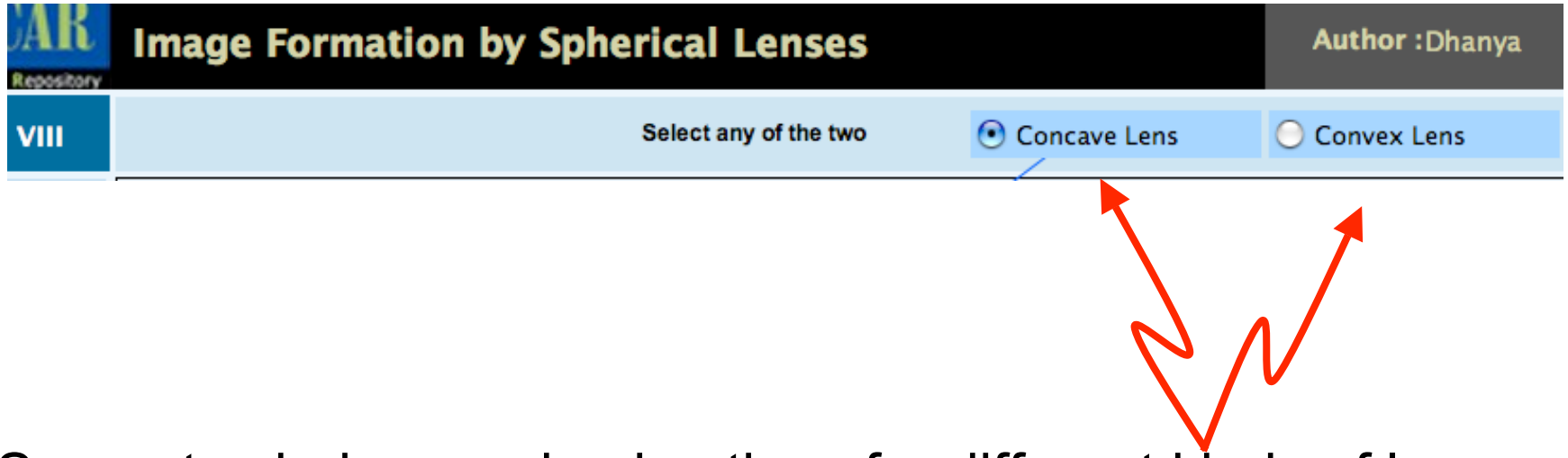
Design principles

Modularity



Separate choices and animations for different kinds of lenses, instead of combining all lenses in single animation.

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Design principles

Modularity

Content is presented in segments of length that a typical user can pay attention to, instead of a long continuous unit

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Design principles

Coherence

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Design principles

Coherence

Users' attention is focused on the main concept by eliminating irrelevant content

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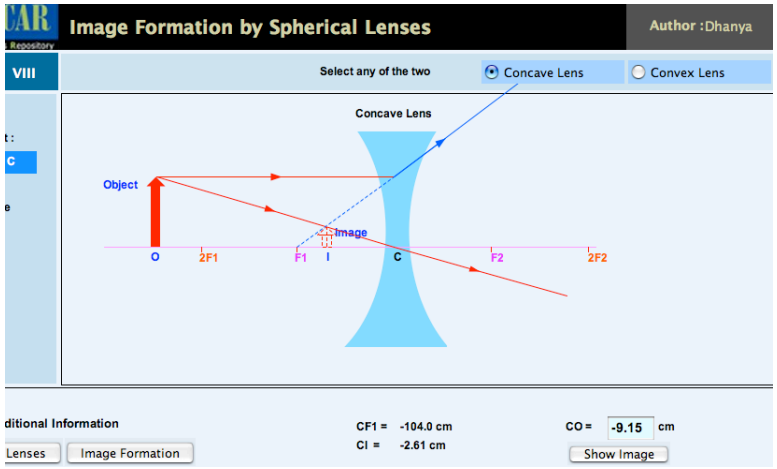
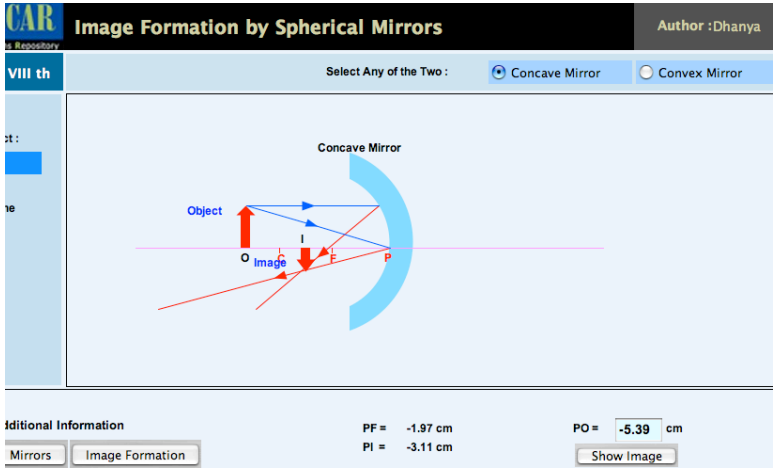
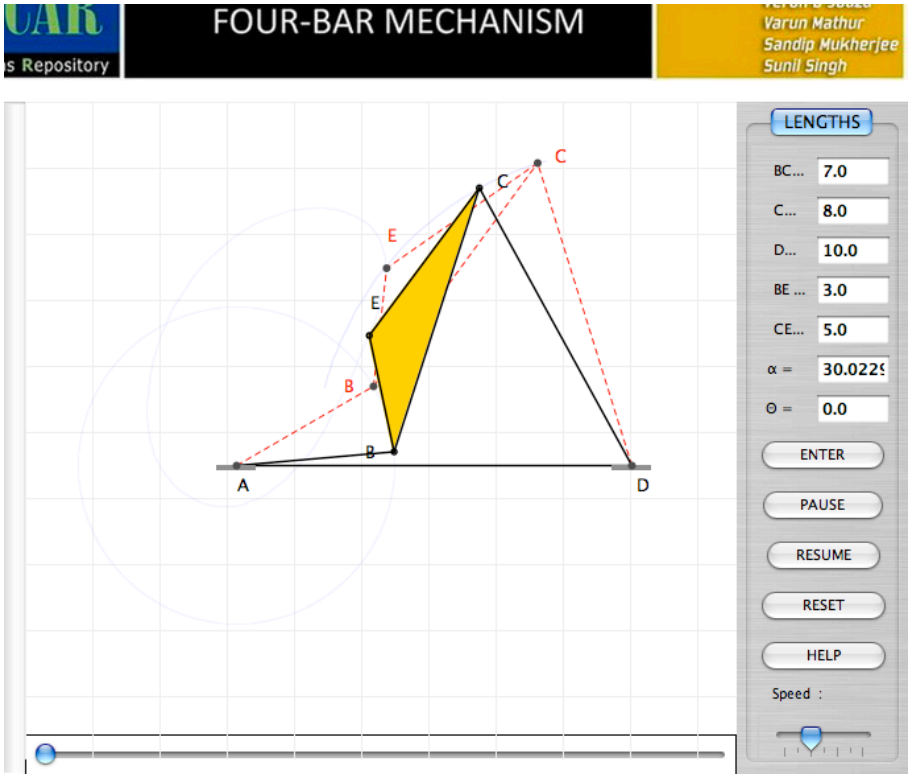
Design principles

Consistency







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Design principles

Consistency

Unified visual theme in an animation, and across different animations helps users make correct interpretations of the material.

Choice of color -- differentiate information types
Controls -- separate area than visual animated area

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Design principles

- Modularity
- Coherence
- Consistency

Dissemination

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Dissemination

- Open-source resources
- Released under creative commons
- Translated into Indian languages
- Students, teachers, content experts, programmers and YOU have an opportunity to participate in creating new animations

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Thanks to:

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