Designing for Children

- With focus on 'Play + Learn'

Designing an Educational Website for Children

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Abstract

The Internet has emerged as a ubiquitous space for Information Age interactions. What is of significance to an educator constantly on the lookout for learning opportunities, spaces, and methods is that children are accessing and using this space for a variety of purposes, be it playing, communicating, and/or learning (in that order).

Learning in a new medium which is quite egalitarian comes with its own challenges. There are several design challenges in turning World Wide Web into a learner's interface. Why does a website merit as a tool for carrying out environmental education? In simple terms, education through a website enhances the 'play' factor.

The design innovation lays in striking the fine balance between content, approach and intent to achieve joyful learning.

Unless these are understood and addressed, the casual user (playing games or browsing) seldom becomes one who uses the internet for specific learning tasks. This paper explores learnings in planning to facilitate children's engagement and learning through a website.

Key words: internet, websites, web based learning, children, environmental education, play, interactive

Introduction

Recognizing the potential of the Internet as a great medium for learning, and the need for it to be introduced to students as an educational resource, Centre for Environment Education (CEE) has designed, and has been running since 2000, a website for children—www.kidsrgreen.org (kidsRgreen).

One of the objectives of kidsRgreen is to see a transformation in the way the web is utilized by learners as learning support material. The website empowers users with information and knowledge, enhances skills, fosters appropriate attitudes and values, and shares action ideas and initiatives, so very critical and integral to EE/ESD

Environmental Education (EE) and Education for Sustainable Development (ESD) provide both an opportunity and challenge, even while utilizing traditional learning media and spaces. The design of an educational resource in a relatively new learning medium as the internet, the website needed to take into cognizance various critical factors—it had to propagate EE philosophy; utilize principles of learning, approaches and methodologies unique and essential to EE and ESD; ensure use of the website by young learners in schools and at homes, while also optimizing the opportunities of the medium itself.

When the website was to be launched in 2000, there was already a deluge of websites; the web based resource being planned for children and the instructional design therein had to facilitate transformation of all learnings and experiences from the print medium into formats fitting the exciting new medium. This was the challenge that instructional design had to address.

kidsRgreen was launched on the Earth Day (22 April, 2000). In the year 2008, the website was shorlisted as a finalist for the Stockholm Challenge Award.

In this paper we explore our involvement in the instructional design, website format and design, aesthetics and propagation of its use, as well as learnings there from.

1. Environmental Education and Education for Sustainable Development

Since its inception in 1984, education has been a key thrust of the Centre's activities. A lot of learner support material has been developed by the organization for over two decades on themes ranging for water to disasters. While designing learner support material the underlying philosophy and approach has been to create locale specific, user friendly, active-learning, participatory and hands-on experiences that take learners through a five-step ladder of Awareness, Information, Knowledge, Attitude, and Action.

With the experience of designing learner support material in the print and audio visual media, the Centre wanted to explore web-based learning environments. The web medium met one basic requirement that is important when carrying out EE/ESD—a focus on the individual. The web provided for diverse knowledge gains through the play factor, with focus on the individual learner. It was easy to obtain learner engagement to help him/her move through the five step ladder. In simple terms, hyper texts, hyper media, and interactive elements of the web bestowed the possibility to introduce EE and ESD in a manner such as a learner could benefit from.

2. From the traditional to the new

Information is critical to EE and ESD. Information and knowledge on environment and sustainable development is not possible to be obtained as a consolidated content from a single source unlike other formal subjects. Teachers and students have always, when needed and where possible relied on traditional sources of information. There are libraries and newspapers that served the purpose of an educational resource. Both these had recognized limitations.

The internet emerged as a resource with possibilities of access to unlimited information, quick search, communication and collaborative learning. The schools in India are still in the process of assimilating this powerful medium in their teaching learning practice. Computer instruction was introduced into Indian schools by mid 80's, the focus was primarily limited to understanding the hardware, and at the most, learning software like word processor, paint brush or making slideshows. The focus was not very much on the applications using computers (particularly when plugged to internet). There was no application of learning from the computer classes for knowledge gains in other subjects.

There were clear technical and cognitive barriers in using the computers and web based approaches in the schools.

CEE conducted numerous workshops with teachers and children showcasing what and how to learn from a website. In many situations, there was a hesitancy and indifference shown by teachers who were not well versed with the new learning ways. Interestingly, children had already started using internet for school work at home.
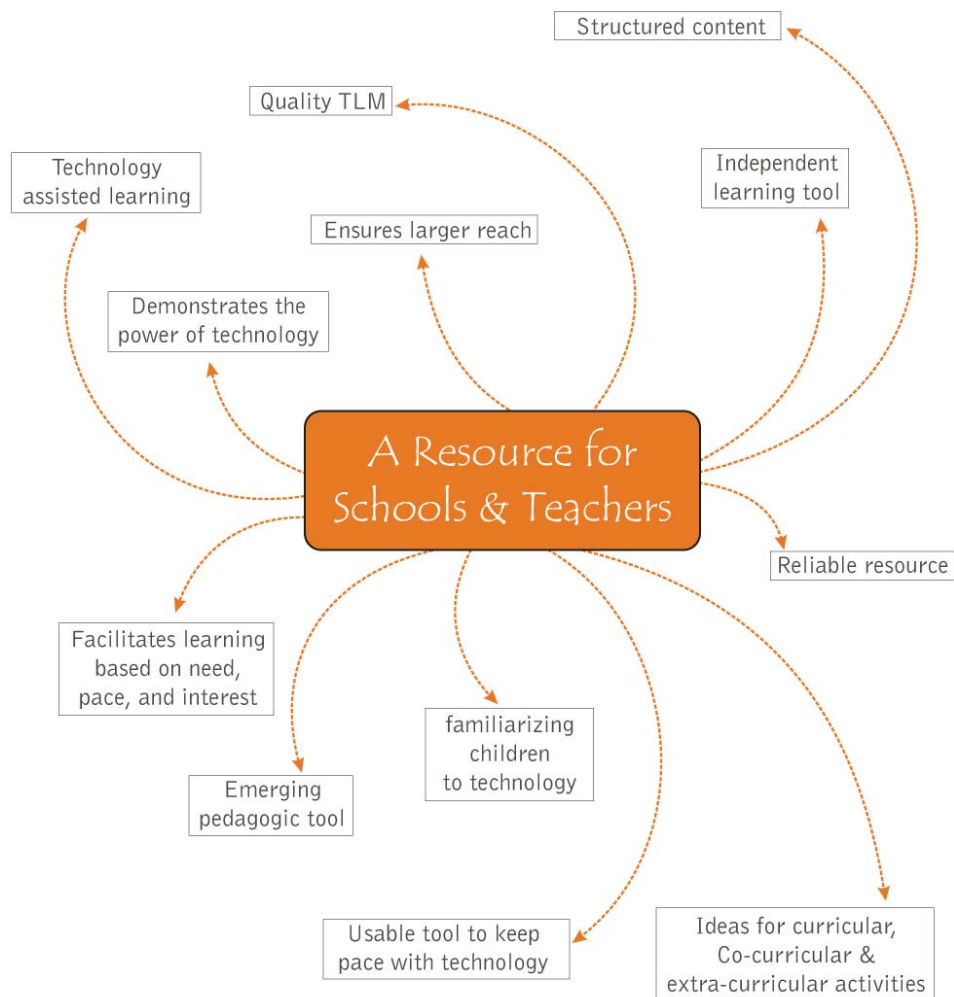

Figure 1 : Website as an educational resource and a new pedagogy

3. Fostering Learning

There were some advantages and disadvantages that CEE had to concede when designing an EE/ESD website for children. Clearly EE/ESD was not part of the classroom instruction, so it was not an aide that helped children with their usual school subjects. (EE was made compulsory in schools in India only following the Honourable Supreme Court judgment in December 2003). Moreover, children were not clearly assisted in this area by teachers or parents. But, there were many programmes being funded by Ministry of Environment and Forests and Ministry of Human Resource Development to inculcate children's interest and motivation to learn for the environment.

EE programmes were carried out in the co-curricular and extra curricular spaces in the school schedule. While traditional school subjects were learnt through text books and teacher assistance. The very nature of EE (interdisciplinary, experiential, locale-specific, individual focused) and its place not directly with in the school curriculum was most amenable to a web based platform. This was an important consideration in designing the website for children.

Web based learning had to deal with new sets of cognitive barriers generally in terms of learning with new technologies and particularly with the content of kidsRgreen website.

For most children in the country, introduction to computers happened through playing games on the computers. Technology application through a children's website was an initiative to provide students with challenging, authentic and fun-based learning environments. This was a way to engage young learners in EE/ESD and at the same time improve their self-esteem and attitude towards utilizing computers and internet for an educational purpose.

What was noticed in computer usage was that learners/children gained greater autonomy in using the medium and this became a strong motivational factor (which is again critical to learning).

4. Joy of Learning Format
The agenda for the instructional design team was to design an EE/ESD resource that learners found a positive value in engaging themselves, in a learning goal

or activity under the overarching goal of EE/ESD. This meant that the website had to provide content that provided a clear direction and quality for the learning, without losing the spirit and spontaneity of play.

There was a clear consensus among the instructional design team to go for 'magazine' format in creation of a website. Content was provided under different sections—Spaceship Earth, Let's do it, Green Games, Green Club, Green Gifts, Terrific Resource for EE, etc.

The magazine format for the website was guided by the basic tenets of learning— that a learner makes connections between pieces of knowledge. The website attempted to meaningfully and accurately organize content, so that children could retrieve and apply their knowledge effectively, as and where needed.

Another important consideration to go with the magazine format for the site was that EE was totally not new the learners, in the sense that many aspects of the environment and ecology were part of the science and social studies curriculum. In a way children had some amount of knowledge and were aware of positive environmental attitudes (for instance children were aware that not turning off lights or fans when leaving a room was not good behaviour). In a way the monthly magazine format was seen as something that could complement and supplement learning in the school and enlarge horizons on understanding on various aspects related to EE/ESD.

The format also provided an identity and some level of continuity (in the sense that the sections were set). However each section had something different to new to offer every month—both in terms of content, format and design. Thus retaining the surprise element and 'play factor'

Figure 2 : Homepage of kidsRgreen

Autonomous use of computers essentially implied that children were most commonly using it to play games or maybe use paintbrush. This gave the clue make games as an important methodology for learning through the website. The play factor became the anchor for the site. Games with messages that included positive environmental behaviours (for example, learning to recognize and sort garbage as that which degrades and that which won't) were designed. For children, games were a natural way of using computers; the environmental messages entwined in games were a strategy to bring about shifts in attitudes and individual or collective action, (an important goal of EE). In regular feedback obtained from users, the Green Games section has been the most popular section of the website.

Figure 3: Environmental Games on kidsRgreen

5. Designing with Hypertexts

In their new literacy and technology position statement, the International Reading Association (2001) suggested that "traditional definitions of reading, writing, and viewing, and traditional definitions of best practice instruction—derived from a long tradition of book and other print media—will be insufficient."

Unlike texts in print media which are linear, static and at the most supported by two dimensional, graphics, photographs, illustrations, tables, internet opened up opportunities for new text formats—hyper texts and multi media. Hypertext, animations, photographs, cartoons, audio and visual provisions were immensely beneficial for creating EE/ESD material which actually supported many methodologies and approaches to support EE. The designers of the website had to make a meaningful transition to developing resources with new dynamics of the text and visual formats. Written texts, images and sounds had

to combined innovatively to create a learning resource for children; had to convey meaning, explain activities, present messages through games, and respond to asynchronous communication.

The content design had to consider factors like children's attention spans, readability, interest factor, retention, analysis, and fostering other higher order learning skills through the design format.

The design had to estimate use of multimedia representations that demand new ways of accessing, manipulating, organizing learning and response to information by the user. The text progression through navigation and hyperlinks had to be so designed to enhance comprehension.

Likewise, print material was usually created for a specific socio cultural and academic context of the learner. A website reached children all over the world. The communication had to be presented in such a way that it was more or less appropriate for users across countries and cultures and social contexts.

And importantly, the purpose of this educational resource was not to overwhelm the user with distracting use of font, colour, animations and visuals but rather to use these to complement support and enrich. The design has developed organically and spontaneously in response to the feedback of the users and the nature of the content.

6. Aesthetics
Ultimately, the fundamental consideration for the text, the instruction and the graphic user interface was that it was a children's site! The fundamentals of navigations, presentation of information on the website had to be given a different treatment.

It was not about organization of buttons and links. The elements on the graphic user interface used elements that enticed a child and were close to representation of the environment. Free hand drawings were used to create the homepage and inside pages. The colour palette was given critical importance—colours were brilliant. The fonts were played around in a variety of styles, shapes and sizes to achieve the liveliness. Animated icons were used to

represent buttons to various sub sections of the website. These features of the website became those that caught the attention of users.

7. Conclusion

Web based pedagogies are quite amenable for EE/ESD because the hypertext and hypermedia environments, the play and fun factors, support knowledge gains and attitude shifts. However, designing learner material needs one to understand the critical elements of learning, content design and aesthetics. However, because web based pedagogies are new, sustained efforts need to be put in to allow schools, parents, teachers and children use the resource for education. Strategies that hook users to these resources need to be taken into consideration. As discussed in the paper, games or the play factor was the key to formatting the website into a magazine. The authors however suggest that newer strategies can be designed by following user habits on the internet.

The authors also would like to mention that www.kidsrgreen.org was chosen to be a finalist for the Stockholm Challenge award which is a pioneer among ICT awards and networking organizations showcasing best ICT examples for people and society. The award is a search for and recognition of excellent examples of information and communication technologies that show convincing benefits to people and communities, wide impact and proofs of future sustainability. The award was a measure of recognition of the role of ICT in achieving organizational objectives, empowerment of target groups and identifying user needs, demonstrative of social impacts and sustainability.

KidsRgreen is now in the ninth year. The monthly e-magazine has had an unbroken run over the period. While the basic philosophy and framework have retained the content and the design of the website are continuously evolving in response to new developments, new ideas and themes over the past two years. Since the last two years, KidsRgreen has been observing a theme for a year. In the year 2008, the theme was Climate Change. In 2009, kidsRgreen is exploring Earth Charter.

In 2010, kidsRgreen completes a decade which has been creative, responsive, proactive and dynamic. This is in itself keeps the design team energized and

motivated.

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